Railway Age

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Railroading—Is It a Worthy Occupation?

ONE of the points stressed by speakers and in the discussion at the Younger Railroad Men's Conference in Pittsburgh last week was the importance of the railroads to the country and, consequently, the dignity of railroad employment. It is doubtful whether railroad employees as a whole recognize fully how high their calling really is. When Thomas Jefferson negotiated the Louisiana Purchase in 1803, adding to our territory the great region between the Mississippi and the Rockies, it was not believed that this area would be opened up to settlement for at least 300 years—and it probably would not have been, had not the railroad come along when it did. But the accomplishment of the railroads is not all in the past. Once the country was developed, the railroads could not rest satisfied with their accomplishment. They had to keep on. Nowadays the problem is not the opening up of new territory, but the handling of greater traffic more efficiently on lines already in existence. Intensive development, although less spectacular, is just as difficult and calls for just as much skill as extensive development. The building and placing in service of a modern locomotive is just as important to the present age as the building of two or three miles of track was to the country two generations ago. Multiple tracking, signaling, improved terminals, better methods and machinery in shops and power plants—all these mean as much to our economic life today as the laying down of tracks in virgin areas did fifty years ago. Less spectacular, yes, and less romantic—but just as important. It would mean much to the industry if all employees could get this view and carry it with them in their contacts with the public.

An Instructive Collision

THE superiority of the space interval system over the time interval for operating trains on a busy railroad may be expressed in various ways, none of them entirely satisfactory. They are unsatisfactory because of the numerous indeterminate factors, and the difficulty of confining a discussion to the essential points; and the impossibility of attaining desirable brevity. One of the most practical arguments is, that, with the block system, it is possible to get along with careless or half-educated trainmen much more successfully than would be possible when depending on the time interval, the time-table and written train orders. But this is an argument not much used in public discussion, for the reason that no railroad officer wants to admit that carelessness or incomplete training ever becomes an important factor on *his* road. In private discussions no one, of course, denies the facts. However, an illuminating discussion on this feature of safety has been made public this week by the Interstate Commerce Commission, and the reader will find the gist of it on another page. It is the report of the Bureau of Safety on a rear collision at Eau Gallie, Fla., on October 4 last, when two men were killed. On a freight train hauled by two locomotives only one man, the conductor, with the possible exception of the colored fireman of the leading locomotive, was acquainted with the road. And this conductor is held primarily responsible for the collision. Knowing that he had green men, making necessary on his own part, unusual precautions, he failed, nevertheless. For once the commission's stereotyped admonition (sometimes used without due regard to modifying conditions) becomes very apposite: "Had an adequate block-signal system been in use on this line, this accident probably would not have occurred."

Modernize the Bridge Records

A BRIDGE engineer was recently asked to determine whether a new locomotive of heavy design could be handled over his line for delivery from the manufacturer to another road. His investigation quickly centered on one bridge of limited capacity; the decision was a close one, but he came to the conclusion that the engine could be handled under a slow order. This decision was made promptly and with a narrow margin for uncertainties because all of the bridges on this road had been classified under the Cooper system of loading, according to the A. R. E. A. rules for the investigation of old bridges. The completion of this classification cost money for which there was no immediate return, but it gave the bridge engineer a set of records which are invaluable when the traffic department is soliciting business involving the handling of special equipment or unusually heavy loads. Not only does it enable the bridge engineer to make his determination quickly but it also insures a greater degree of accuracy than would be permitted in the time available if he were compelled to make original calculations each time that a question of this character came up. Being made accurately and with systematic care, the Cooper classification permits of a much closer decision than if it had to be based on rough or approximate figures. The advantages of this system of recording the loading capacity of old bridges has long been recognized by the engineering departments of certain roads, but since the adoption by the A. R. E. A. of rules covering the procedure to be followed the system is enjoying increased popularity because of its obvious advantages.

To Cut Train Schedules an Hour

AN important road which operates in a territory in which traffic is now increasing rapidly and where competition is unusually keen plans to reduce the time of its important passenger and freight trains between two of its large terminals one hour by installing small interlocking plants at 20 outlying grade crossings with other railroads and thereby eliminating the necessity for stopping these trains. This procedure was adopted after tests showed that these trains suffered an average delay of

three minutes to come to a stop and whistle, as required at non-interlocked railroad grade crossings. In addition to effecting a reduction in time this road will also make a saving in fuel consumption and will reduce the wear and tear of equipment occasioned by train stops. Studies such as this show the economies that are still possible in the handling of through as well as local freight and passenger traffic, while at the same time effecting improvements in service of benefit to railway patrons.

Coal and Cinder Handling at Small Terminals

RAILROAD operating and mechanical officers have recognized that mechanical equipment for handling coal and cinders at large terminals and important intermediate points are practically indispensable, from the point of view of reduced labor cost as well as the expeditious turning of power. It is admittedly as important, however, to cut labor costs and turn locomotives quickly at small terminals, and since these far out-number the terminals of large and intermediate size the possibilities of aggregate saving are great. Some highly pertinent information on this subject is contained in the report of the Standing Committee on Fuel Stations presented at the last annual meeting of the International Railway Fuel Association. It is estimated in this report that there are 400 terminals on Class I railroads alone, at which 25 to 100 tons of coal and 5 to 25 tons of cinders are being handled daily, entirely by manual labor. The committee reported a cost of 25 cents a ton to handle this amount of coal without mechanical facilities, and 50 cents per ton of cinders. Figures submitted by various railroads to the committee indicated that this cost for handling coal could be reduced to 14.7 cents a ton by the use of a gravity trestle, to 14.5 cents a ton by a locomotive crane, and to 10.8 cents a ton by mechanical coal plants. Careful estimates including all elements in the cost of installing and operating mechanical coal and cinder handling facilities at small terminals have been made in numerous instances, showing returns on the investment of 20 to 30 per cent or even more per annum. Concerning this subject, the chief engineer of one of the roads reporting to the committee made the following statement: "As a general proposition a study should be made and consideration given to the installation of mechanical facilities when the cost of handling coal exceeds 18 to 20 cents a ton. In determining the economics of the installation, delays to trains and cost of turning engines at the terminals should be considered." Plainly the coal and cinder handling situation at small terminals is one which the railroads can ill-afford to overlook.

A Mystery in Locomotive Design

STEAM locomotives have now been in use for a century. During that period they have developed from small crudely-proportioned, rule-of-thumb machines to great self-propelled power plants, in the design of which are applied such sciences as mechanics, kinematics and thermodynamics with a degree of exactness which ought to insure the prediction of performance results within a very narrow margin of efficiency. It is an interesting paradox, however, that the feature which perhaps had most to do with Stephenson's success in making the steam locomotive a real factor in transportation is as much a mystery today as it was a century ago. Little more information worthy to be classed as scientific is known concerning the control of the production of draft than was known when the builder of an early English locomotive failed because it did not occur to him to direct the exhaust vertically when he piped it into the stack horizontally in order to get rid of its noise. From this statement it cannot be implied that reasonably satisfactory or at least workable results have not been obtained in the regulation of draft appliances. It is significant, however, that the design and regulation of this factor, which is of such tremendous importance in producing combustion, are still controlled by the same rule-of-thumb methods which obtained a century ago, so that the performance to follow a change of proportions cannot be predicted with even a reasonable degree of certainty. This is strikingly illustrated by the case of the Missouri Pacific three-cylinder locomotive tests at Altoona, referred to in the editorial columns of our November 7 issue, in which several trials were necessary before a satisfactory set of stack and nozzle dimensions and proportions was finally arrived at. The question may be asked, why be concerned in developing a science to replace rule-of-thumb methods if reasonably satisfactory results have been obtained by them? The answer is, because satisfactory drafting is by no means general and because combustion offers probably the largest single field for future improvement in locomotive efficiency. Until sufficient knowledge is available to enable us to understand the process by which the energy of the exhaust steam jet is transferred to the hot gases from the firebox, who shall say that even the best results so far obtained are not still susceptible of further great improvement? The front-end offers a splendid opportunity for research in which test plant facilities will be required, and it is of such great importance in its relation to the success of all other refinements for the improvement of locomotive efficiency that it warrants the organized attention of the railroads through the American Railway Association.

The Increasing Importance of Rail Inspection

AT this time when the railways are placing their orders for their 1926 rail requirements, it is pertinent to call attention to the importance of taking the steps necessary to insure that they will secure material of the best quality. More than 1,500,000 tons of rails have been ordered within the last two months and other orders are being placed almost daily. A large part of this tonnage will be rolled in accordance with the specifications adopted by the American Railway Engineering Association last March and by the American Railway Association during the current month. For the first time the railways have prepared a specification which has been accepted by the manufacturers without the imposition of a premium for compliance with any of its requirements. While this specification still omits certain desirable provisions, the fact that rails can be secured in entire conformity with it as the standard price will result in its being used more generally than any other specification. Uniformity in production and, it is hoped, in quality should follow general adherence to a single specification.

At the same time the service which rails are called upon to render bears such an intimate relation to safety of travel that every precaution should be taken to insure that material of the highest practicable quality is incorporated in them. One need only refer to the disastrous wreck caused by a defective rail on the St. Louis-San Francisco near Memphis, Tenn., on October 27, to demonstrate this. Severe as the service demanded of rails now is, it is constantly becoming more severe. Axle loads on both

locomotives and cars are constantly increasing while the growing length of trains adds to the continuity of application of the load. Likewise, the density of traffic over the main tracks, the tracks in which new rails are laid, is growing from year to year while speeds, if not increasing, are at least showing no tendency to decrease.

To meet these conditions rails of heavier section are being employed on a number of roads this year. Among these the New York Central, which has long adhered to a 105-lb. section for its main lines, has ordered 44,000 tons of 127-lb. section, while several western roads are replacing their long established standards of 90-lb. sections with 110-lb. rails. This increase in section requires the exercise of greater care in manufacture, for it is self-evident that, with a given number of passes in rolling, the metal in the smaller sections received more working than in the sections now being rolled.

A further consideration that cannot be overlooked is the fact that forecasts indicate that the demand for steel products in 1926 will be large, probably taxing the mills to capacity. Under such conditions, it is especially important that care be exercised to detect shortcomings in workmanship and lapses in practices.

Real progress has been made in the manufacture of steel rails in recent years, but rail manufacturer has not yet reached the point where less than the maximum vigilance is warranted, particularly since the new specification requires more attention to manufacturing details. The rail manufacturers and the railways alike should, therefore, exercise the maximum vigilance in the manufacture and inspection of the rails now being ordered to insure their freedom from those defects which contribute to failures.

Wages, Earnings, Living Costs and Productive Efficiency

WHEN the net operating income being earned by the railway companies as a whole is relatively small, or the question of what wages should be paid by a poor road is under consideration, the leaders of the railway labor unions contend that railway employees are entitled to receive reasonable wages regardless of the net return being earned on capital. A sound principle is applicable under different conditions, and if this principle is sound it must follow that no matter how much the net operating income earned by all roads or any individual road may increase, the increase in it cannot justify an advance in wages which, measured by other standards, already are reasonable.

The *Railway Age* has never accepted as sound the principle that the net return the railways are earning can logically be entirely disregarded in fixing wages. The fact is, however, that since the Transportation Act has been in effect, and to a considerable extent for years before, the labor unions have been successful in getting wages fixed regardless of the amount of net return the railways have been earning. Railway employees cannot reasonably ask to be allowed to both eat their cake and keep it. They cannot reasonably ask to have their wages kept high regardless of the financial returns being earned by the companies, when those returns are poor and then ask to have their wages advanced because the net returns being earned have increased. It is, however, a good illustration of the opportunism that characterizes the policy of labor leaders that some of them recently have been holding conferences at which they have considered seeking advances in wages, for there can be no question that these conferences have been inspired principally by the increases in net operating income which recently have occurred.

In the discussion of any advances in wages which may be sought the labor leaders will find themselves in much the same position as shippers who now, or shall in the near future, oppose advances or seek reductions of rates. The railways have a moral and legal right to earn on the average a "fair return" on the value of their properties. For five years under the Transportation Act they have been denied the opportunity to do so upon the ground that business conditions have not been normal. If, however, it is a sound policy to so regulate rates that the railways cannot earn a fair return when business is poor, then, on the same principle, they should be so regulated when business is good as to enable them to earn more than a fair return. Likewise, if wages are kept high when business is poor and net operating income is low then, on the same principle, there can be no justification for advancing wages merely because business has become good and when the inevitable result will be to reduce the net operating income that the railways can earn. Railway patrons for five years have had rates that have been too low in proportion to the operating costs of the railways, and employees during the same time have had wages that have been too high in proportion to the rates the railways have been allowed to charge. The railways may now very reasonably say to patrons and employees that for some time in future both rates and wages should be so fixed that the railways may have a chance to offset some of the losses they have suffered within the last five years as a result of the disparity that has existed between rates and wages.

If railway employees are soon going to be told by their leaders, as seems probable, that they should support a movement for higher wages, they ought, in fairness to the railway companies, to consider the history of earnings and wages within recent years as well as the present relations between wages, the cost of living, earnings and operating efficiency.

The large advance made in wages in 1920 was followed by a large advance in rates, but, partly owing to the heavy decline of traffic that occurred soon afterward, this advance in rates proved to be much too small to restore the pre-war ability of the railways to earn net returns. Wages were reduced in 1921 and 1922, but rates also were reduced in 1922. The outcome has been that in proportion to number of hours worked and cost of living railway employees throughout the last five years have received much higher wages than they ever did before, while the net returns earned by the companies have been relatively much smaller than they were before the war. During these years the employees have been relatively more prosperous and the railway companies relatively less prosperous than they ever were in history. The companies have been doing better in 1925 than in any year since prior to the war. Their increased prosperity has been secured, not by advances of rates or reductions of wages, but by increased operating efficiency. As a matter of fact, thus far in 1925 the average wages of employees have been higher than in any previous year except 1920 and 1921. Average earnings per employee per hour in 1919, the last year of government operation, were 56.5 cents; in 1920, 67.6 cents; in 1921, 66.7 cents; in 1922, 61.3 cents; in 1923, 61 cents; in 1924, 62.3 cents; in the first eight months of 1925, 62.9 cents. Average annual earnings per employee in 1919 were $1,486; in 1920, $1,820; in 1921, $1,666; in 1922, $1,623; in 1923, $1,617; in 1924, $1,614; in the first eight months of 1925 at the annual rate of $1,631.

The cost of living reached its highest point in June, 1920, just after the large advance in wages of that year was made. It is now 13 per cent less than it was at

the end of 1919, while the average hourly wage of all employees is 11 per cent greater than in 1919.

If the comparison is carried a little farther back to 1916 it is found that the cost of living now averages only 55 per cent more than it did nine years ago while the average earnings per hour per employee, are 122 per cent greater and the average earnings per year per employee 83 per cent greater.

The *Railway Age* frankly concedes that as the productive efficiency of an industry increases the wages of its employees should increase more in proportion than the cost of living. All the workers in industry should participate in the benefits of increased productive efficiency. Furthermore, there has been since the railways were returned to private operation a great increase in their efficiency of operation, and apparently this is one of the grounds upon which the labor leaders consider basing a movement for higher wages. There can be no question that the increase in efficiency of operation that has occurred since 1920 has been largely due to improved morale and better work of employees. But if productive efficiency is to be used as an argument for higher wages, consideration must be given to the fact that within the last ten years employees have secured reductions in hours of work as well as advances in wages, and that in consequence the average annual output of the railways per employee per year was for some time greatly reduced and is not now much larger than it was nine years ago. In addition, consideration must be given to the fact that the increase in the productive efficiency of the railways has been largely due to the investment of additional capital, and that this capital is entitled to receive a return.

The investment made in railway properties since 1916 has been about six billion dollars. The investment per employee in 1916 was $10,251, while now it is about $12,773, an increase of about $2,522, or 25 per cent. The average number of hours worked by each employee in 1916 was 3,151; in 1924 only 2,578; and thus far in 1925 at the annual rate of 2,591. The average earnings per employee in 1916 were $892 and thus far this year have at the annual rate of $1,631, an increase of 83 per cent, while the average hours worked by them annually have declined about 18 per cent. Average tons carried one mile per employee in 1916 were 240,645 and average passengers carried one mile 20,998. These figures were largely reduced after the establishment of the eight hour day. Ton-miles per employee in 1920 were 221,000; in 1921, 205,400; in 1922, 228,632. It was not until 1923 that the figure for 1916 was equalled. On the basis of the performance in the first eight months of 1925 average ton-miles per employee this year will be 253,000, an increase of 5 per cent over 1916, and average passenger miles per employee 20,788, a slight decline as compared with 1916. In other words, although the investment in the property per employee is 25 per cent greater than it was in 1916, and although the average earnings per employee are 83 per cent greater, the increase in transportation output per employee has been only about 5 per cent. These figures show it will be impossible to base a convincing argument for advances in wages upon the productive efficiency of employees.

The foregoing statistics are averages for all employees. The conferences that recently have been held by labor leaders indicate that if a wage movement is begun it will, as has usually been the case in the past, be initiated by the enginemen and trainmen. Regardless of who begins it, however, it is practically certain that if it is once started all classes of employees sooner or later will get into it. It may be that there should be some readjustments of wages just as, perhaps there should be some changes in rates downward as well as upward, but in the face of the record of the last five years and of present conditions there is no reasonable ground for a movement for general advances in wages any more than there is for a movement for general reductions of rates in any territory.

After having suffered for five years from confiscatory net returns the railways of the eastern and southern territories have just begun to enjoy a measure of prosperity, while those of western territory must secure an advance in rates if they are to have prosperity. The strongest possible resistance should be offered to any movement affecting either rates or wages which will tend to reduce the net operating income of the railways of any territory until the losses suffered by them during the last five years have been offset by the earning of adequate profits for a reasonable period.

New Books

Freight Terminals and Trains. By John A. Droege, general manager, New York, New Haven & Hartford. 56 pages. 6 in. by 9 in. Bound in cloth. Illustrated. Published by McGraw-Hill Book Company, New York.

This is the second edition of this valuable and authoritative book. The first edition was published in 1912, and contained 465 pages. The original material has been brought up to date and somewhat amplified, and new chapters have been added on electrical operation and the co-ordination of railroad and motor truck service.

It is one of the peculiarities of the railway profession that there are so few books, and particularly so few good books, on the subject of railway operation, and especially so few good books on the activities of the department that actually moves the trains—the transportation department. Railway operating men write multitudinous numbers of letters, and the railway publications have no great difficulty in securing plenty of excellent articles on transportation problems. When it comes to railway operating books, however, the situation is different. This may result because, as R. E. Woodruff expresses it in his book, "The Making of a Railroad Officer," the railroad man is of the motive rather than of the mental type. It may be because the transportation officer finds himself too busy to permit himself to take the time to co-ordinate his thoughts on the many varied subjects to which he has to give consideration, and assemble them in systematic form. Mr. Droege was a division superintendent when he found time back in 1912 to write the first edition of this work. The second edition comes off the press just after he has been appointed a general manager. It is rare, indeed, that we have a book by an author of such high rank in the operating department.

Freight Terminals and Trains, immediately it was written in 1912, became the authority on its subject, and has so remained to this day. No one would imagine preparing a bibliography on railway operation without giving this volume a chief position in the list. The book secured its position of pre-eminence because of its peculiarly skilful combination of engineering and operation information; and because of its all inclusiveness. In addition to these, there was an interesting vein of comment born of the author's varied experiences as an operating officer on a busy railroad. In revising the volume for its second edition, Mr. Droege had to keep in mind at all times the responsibility which he owed to readers who were familiar with the excellent character of the former work. Mr. Droege has fully met this responsibility. His new volume is by no means a mere reprinting. Its

accuracy is notable; if anything, it is in this respect better than was the earlier edition. It is up-to-date, the old data that served its purposes in 1912 having been very generally replaced by more recent information made available in 13 busy railroad years. Most important of all, one finds due recognition of the modern developments of railroading among which may be instanced the use of the motor-truck in co-ordination with rail transport, the use of what the Baltimore & Ohio designates as its main-trackers, the peg system utilized on the Buffalo, Rochester & Pittsburgh, etc. One notices comment on the railways' failure to secure greater utilization of their motive power.

There is nothing, however, on the new development of long engine runs, possibly for the reason that the author felt that this was more of a passenger service development than one related to freight service.

The book is eminently practical. It discusses with equal degree of adequacy both design and operation of the facilities used by a railway to move its freight. The design features are given in the main by means of quotations from the manual and proceedings of the American Railway Engineering Association and by illustrated description of notable developments, including classification yards, water front terminals, coal piers, grain elevators, engine terminals and freight houses. The author's comments based on experience are supplemented by copious quotation, all reproduced with proper reference and credit from articles which have appeared in the railway and engineering publications. The reader will realize before he has gone through many chapters that he is not getting merely the views of one man, but a compendium of the views and experiences of all who have seen fit to put on record in recent years worth-while ideas or accomplishments with reference to the handling of freight by railways. The author is to be complimented on having put his work together in very cogent form. It has the content and value of an encyclopedia but, in addition, the continuity and cohesion that is impossible in the encyclopedia, combined with which the author's own personality constantly colors the text in a way to make the book not only readable but interesting.

The subjects considered include the design and operation of yards and the work of the yardmaster; management and discipline; the make up and movement of trains; time freight service; records and statistics; the design and operation of freight stations; transfers; mechanical handling of freight; and the design and operation of the locomotive terminal. There are valuable chapters on special facilities such as ore docks, coal piers, and water-front terminals; and of particular interest is the chapter on British freight service. One notes especially the importance given to data of operating costs, and the care taken to make this data up to date so as to be usable with the after-the-war decline in the value of the dollar.

The reviewer has two or three criticisms of the book's manufacture. For instance, some chapters are profusely provided with subheads whereas others are not. The engraver erred on the side of making many of the illustrations so small that they neither reproduce well nor bring out desired detail. Furthermore, much needed original photographs are lacking in a large number of cases.

The illustrations were reproduced from half-tone illustrations, and unfortunately one observes the double screen which usually results in such cases.

The railway world can congratulate itself that this valuable work has now been brought up to date. It is a book that no one desiring to make a thorough study of railway operation can afford to do without.

Proceedings of the International Railway Fuel Association, 1925. Edited by the Treasurer, J. B. Hutchinson, 1809 Capitol avenue, Omaha, Neb. 526 pages, illustrated. Price $3.00.

This book contains the proceedings of the seventeenth annual convention of the International Railway Fuel Association which was held in Chicago, May 26 to 29, 1925. The reports submitted include boiler feedwater heaters; front ends, grates and ash cans; stationary plants; Diesel locomotives; fuel stations, and firing practice. The book also contains the following papers which were read before the convention by men in the railroad field interested in fuel conservation: Signals and the saving of fuel; How can the railroad management effect fuel economy? How can fuel purchases effect fuel economy? The development of oil burning practices on locomotives; Fundamental fuel factors; How can a mechanical officer effect fuel economy? Back pressure as an index of fuel economy, and the N. A. P. A. coal chart.

The Phantom Public, by Walter Lippman. 205 pages, 5½ in. by 8½ in. Bound in cloth. Published by Harcourt, Brace & Company, New York. Price $2.00.

This book cannot be recommended to persons who are not by nature of a rather studious turn of mind, but for these it will be of great interest. Briefly, the author's thesis is that the old theory of democracy—government by the governed—is an unattainable ideal, a goal which is receding from us rather than drawing nearer. The electorate is lethargic—only about half of them go to the polls and those who do go, having their choice limited to a very few candidates, can express their opinion only on the few issues which seem to them most important. The candidate they vote for because of these few issues may differ violently from them on many other matters which they consider less important. Thus the popular will on the multifarious questions which come up from day to day in the government has no expression whatever.

This situation, Mr. Lippman believes, is unavoidable; furthermore he holds that there is nothing intrinsically deplorable about it. The average man has no facilities to enable him to determine what our policy toward, for instance, the Fiji Islands, should be. Public opinion can express itself only at a crisis in governmental affairs and then only on some issue which is put forward in melodramatic form. We cannot even hope that the people will know much about the forces underlying the crisis. In the author's words:

> The public will arrive in the middle of the third act and leave just before the last curtain, having stayed just long enough perhaps to decide who is the hero and who the villain of the piece. Yet usually that judgment will necessarily be made apart from the intrinsic merits, on the basis of a sample of behavior, an aspect of a situation, by very rough external evidence. . . .
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> Thus we strip public opinion of any implied duty to deal with the substance of a problem, to make technical decisions, to attempt justice or impose a moral precept. And instead we say that the ideal of public opinion is to align men during the crisis of a problem in such a way as to favor the action of those individuals who may be able to compose the crisis. The power to discern those individuals is the end of the effort to educate public opinion.

Public debate of the opposing parties on some issue which has been melodramatized before the people will, without their having to go into the merits of the specific arguments very far, show whether one side is holding back information or using arguments which are palpably absurd.

Altogether this is a valuable book on an important subject—not a practical handbook for the man on the firing line, but an important theoretical treatise for the general staff behind the lines who must determine broad problems of policy in public relations.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Facts About Railroad Use of Motor Vehicles (1925 *edition*). Survey by Motor Truck Committee, Nat'l Automobile Chamber of Commerce. Pamphlet No. 12 in "Co-ordinated Transportation Series." 11 p. Pub. by Nat'l Automobile Chamber of Commerce, New York City. *Apply.*

Personnel of Railroad Traffic Departments, by Charles E. Parks. Discusses opportunities in freight traffic offices, positions available, lines of promotion, qualifications and training necessary. 23 p. Pub. by Traffic Service Corporation, Chicago, Ill. 50 cents.

Public Regulation of Competitive Prectices. One of the "Studies in Public Policy Towards Business." See Index under "Railroads." 281 p. Pub. by National Industrial Conference Board, New York City. $3.

The Statisticql Work of the National Government, by Laurence F. Schmeckbeier. Publications relating to railroad finance and operation, Chap. 24, p. 373-406, to railroad wages, Chap. 12, p. 146-168, to railroad accidents, Chap. 9, p. 132-135. A new study in administration of the Inst. for Govt. Research. 574 p. Pub. by Johns Hopkins Press, Baltimore, Md. $5.

The Use of Cost-of-Living Figures in Wage Adjustments, by Elma B. Carr. "Railroads" [U. S. Railroad Administration and U. S. Railroad Labor Board] p. 65-93, and bibliography, p. 448-449. "Street ry. industry," p. 468-472. Bulletin of the U. S. Bur. of Labor Statistics No. 369. 506 p. Pub. by Govt. Print. Off., Washington, D. C. 65 cents.

Periodical Articles

Making Pullmans Safe For Porters. Editorial on the Pullman Company's efforts to reduce safety-razo-blade hazard. Independent, Nov. 21, 1925, p. 572.

Meeting Transportation Needs in Florida, by Richard H. Edmonds. Brief history of railroads and steamships there. American Review of Reviews, Nov., 1925, p. 481-484.

Railroads: Recent Books and Neglected Problems, by Prof. W. Z. Ripley. Comment on what has been written and what might be written. Quarterly Journal of Economics, Nov., 1925, p. 152-166.

Railroads and the East Wind, by William Peter Hamilton. Suggests a representative to speak for all of the railroads before the Interstate Commerce Commission. Barron's, Nov. 16, 1925, p. 3.

Teaming Up the Iron Horse, by Ray T. Tucker. Possibilities of the Van Sweringen consolidation. Independent, Nov. 21, 1925, p. 577-578, 593-594.

The Development of Transportation in Japan, by J. Takaku. Brief history and present tendencies. Annals of the American Academy of Pol. & Soc. Science, November, 1925, p. 49-56.

The Railway Labor Board Problem Studied. Committee report to Associated Traffic Clubs including an historical sketch of the Board by T. T. Webster. Shipper and Carrier, November, 1925, p. 13-16, 60.

Railways Act, 1921—As It Affects the Relationship Between Railways and Traders, by G. F. Bilbrough. Concludes that while more cordial relations between shippers and railroads has resulted, "a more uniform and easily understood system of rate-making is less certain." p. 27. Journal of the Institute of Transport, November, 1925.

Letters to the Editor

Independent Stores Department

MONTREAL, Que.

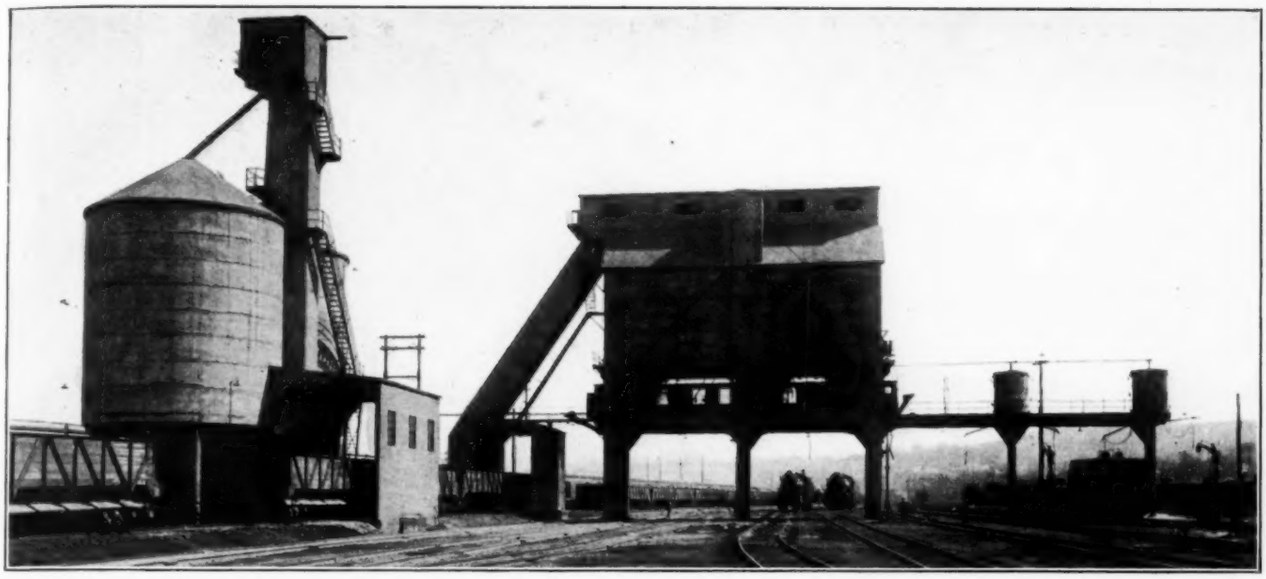
TO THE EDITOR:

Frank D. Reed's article in your issue of October 24 has been read by your many readers with considerable interest and insofar as it relates to specifications, annual budgets, reclamation committees and the disposition of scrap, it is entirely in line with the standard practices of most of the larger railroads on the American continent. It is questionable, however, whether the paragraph relating to the purchasing agent's duties and responsibilities can be accepted at its face value as it is contrary to well recognized practice to allow any supervision of the general storekeeper's duties by the officer in charge of the purchasing of supplies.

The duty of the purchasing department is to purchase material as ordered by the stores department, and the general storekeeper, or otherwise designated head of the stores department, is responsible for the maintenance of all stocks of material, which involves the ordering, receiving, issuing and maintenance of records pertaining thereto. It is essentially unbusinesslike that the purchaser of material should carry responsibility for the receipt of the material. An organization which covers such a joint responsibility does not conform to sound commercial practices and is very far distant from what is characterized as an "ideal" organization. The suggestion that he can curtail or expedite the ordering of supplies is neither here nor there, for experience teaches us that action by the general storekeeper is neither more nor less prompt in one case than the other.

Recognition of the fact that some managements desire to have an executive officer in charge of both the stores and purchasing departments is essential to a full discussion of this matter, but that does not and should not, involve the subordination of one department to the other, and when it is pointed out that under the present A.R.A. rules, the stores department is responsible for the accounting for material, which, of course, includes the approval of all invoices for same, where this department is subordinated to the purchasing department it simply means that the purchasing department shall purchase, receive, pass invoices and distribute to the operating and other accounts, all charges for material issued. This is placing too much responsibility in the hands of a single individual and under very conceivable circumstances is an open door to grave abuses which, from the viewpoint of a proper organization, is distinctly lacking in good principle. It sometimes happens that "The salesman who has hard times getting orders" of whom Mr. Reed speaks, is not essentially unbiased in his prognostigations of "rising prices." The head of the stores department who is responsible for his stores balances should be the recognized authority in the ordering of supplies, thus relieving the purchasing agent of responsibility. Either the general storekeeper is the custodian of the company's material or he is not. A.R.A. standards of practice state that he is, and as such, he must be free of supervision by the purchasing department. Subordination simply means "doing as directed" and a railroad management cannot afford to have a purchasing department direct the business of the stores department.

A. A. GOODCHILD.
General Storekeeper, Canadian Pacific Lines East of Fort William.



A General View of the Coal and Sand Facilities at Argentine—Note that the Sand Drying Plant in the Left Foreground Is Served by a Track Hopper in the Same Track as the One for the Coaling Station

Coal and Sand Facilities Embody Novel Features

Santa Fe is now using new stations of unique design at Argentine, Kan., and Shopton, Iowa

NEW coaling and sanding plants have been placed in service by the Atchison, Topeka & Santa Fe at Shopton (Fort Madison), Iowa, and at Argentine, Kan., which embody a number of distinctive features, primary among which is a unique arrangement for weighing and recording the amount of coal delivered to locomotives. These plants, which were built by Fairbanks, Morse & Co., Chicago, are similar in design but the one at Argentine is considerably larger. This one is, therefore, described in detail below, but the description applies equally well to the Shopton plant except as it concerns the number of tracks served and one or two other features, and the fact that the facilities for delivering sand at Argentine are arranged to serve oil-fired locomotives as well as those receiving coal at the station, whereas only coal-fired locomotives are served at Shopton. In each case the coal and sand plants are separate structures except that the dry sand is delivered from the sand-drying plant to dry sand storage bins in the coaling station for delivery to locomotives. For the sake of clearness, therefore, in describing the facilities at Argentine the coaling station will be considered first.

The 49-stall roundhouse at Argentine is served by 10 approach tracks and the new coaling station was erected across the approach layout about 800 ft. east of the center of the turntable. Of these 10 tracks the four at the north side are used exclusively by coal-burning locomotives, the four at the south side by oil-fired locomotives and the two in the middle by locomotives of both classes. Accordingly, facilities are provided for delivering coal to engines on the 6 northerly tracks, oil to engines on the 6 southerly tracks and sand to locomotives on all 10 tracks. Oil is delivered by means of three oil cranes just west of the coaling station but entirely independent thereof.

The coaling station proper comprises an elevated structure entirely of reinforced concrete spanning over tracks 2, 3, 4 and 5, numbered from the north side, with coal delivery aprons serving these tracks and also tracks 1 and 6. Coal is delivered to the station from a covered track hopper served by a coal car storage track 17 ft. north of and parallel to track 1. Extending south from the superstructure of the coaling station is a bridge spanning tracks 6, 7, 8 and 9 and supporting the facilities for sanding the oil-fired locomotives.

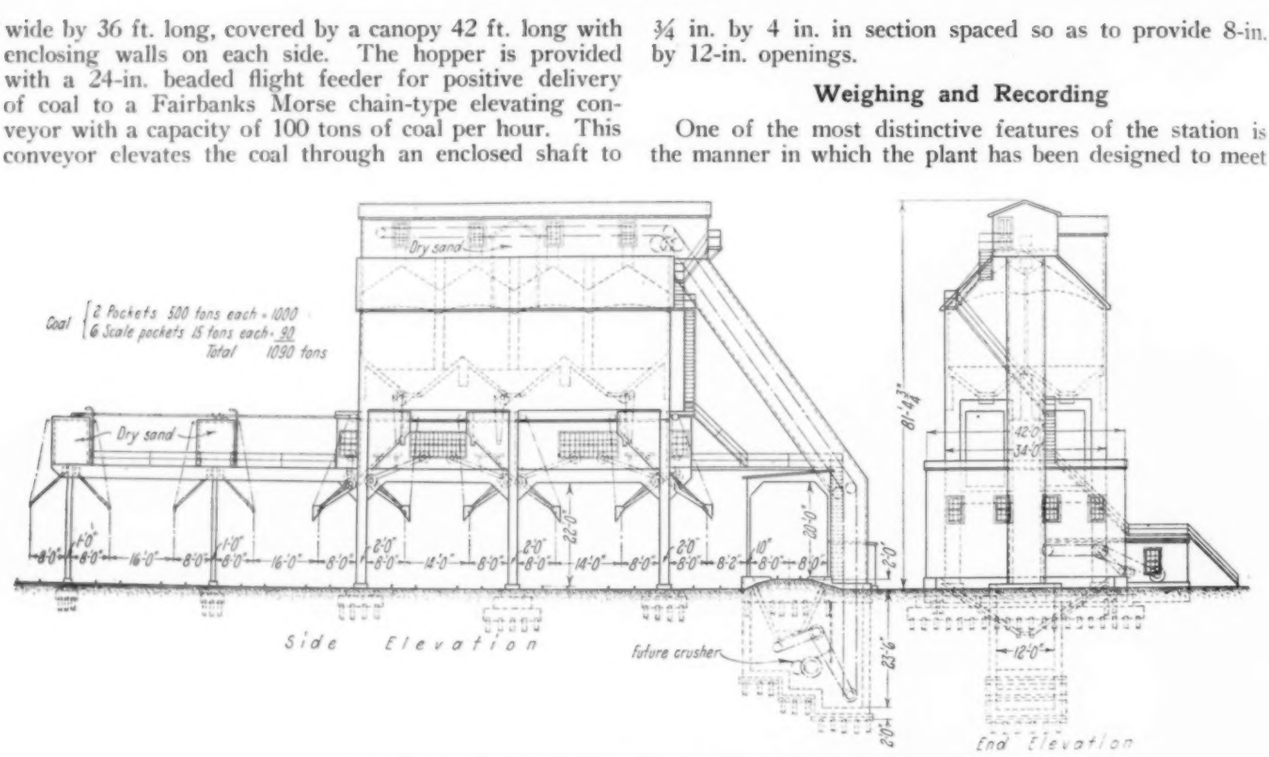
The coaling station comprises a house 34 ft. by 66 ft. in plan, mounted on three bents of four reinforced concrete columns occupying inter-track spaces. The ridge of the gable roof of the pent house is 81 ft. 4¾ in. above the base of rail. This house contains a coal bunker with a capacity of 1,000 tons. It is divided into two bins of equal size by a longitudinal wall, one bin being used for the storage of run-of-mine coal and the other for stoker coal. The bottom of each bin comprises three hoppers, each equipped with radial type undercut gates at an elevation of 39 ft. 11 in. above the base of rail for the delivery of coal to three scale pockets (i.e., six scale pockets in all), each pocket having a capacity of 15 tons. These pockets each serve two coaling tracks and are provided with duplicate gates and hooded aprons for the delivery of coal to either track. In other words, there are 12 aprons in all, six for run-of-mine coal and six for stoker coal.

Coal is delivered to the station in a track hopper 16 ft.

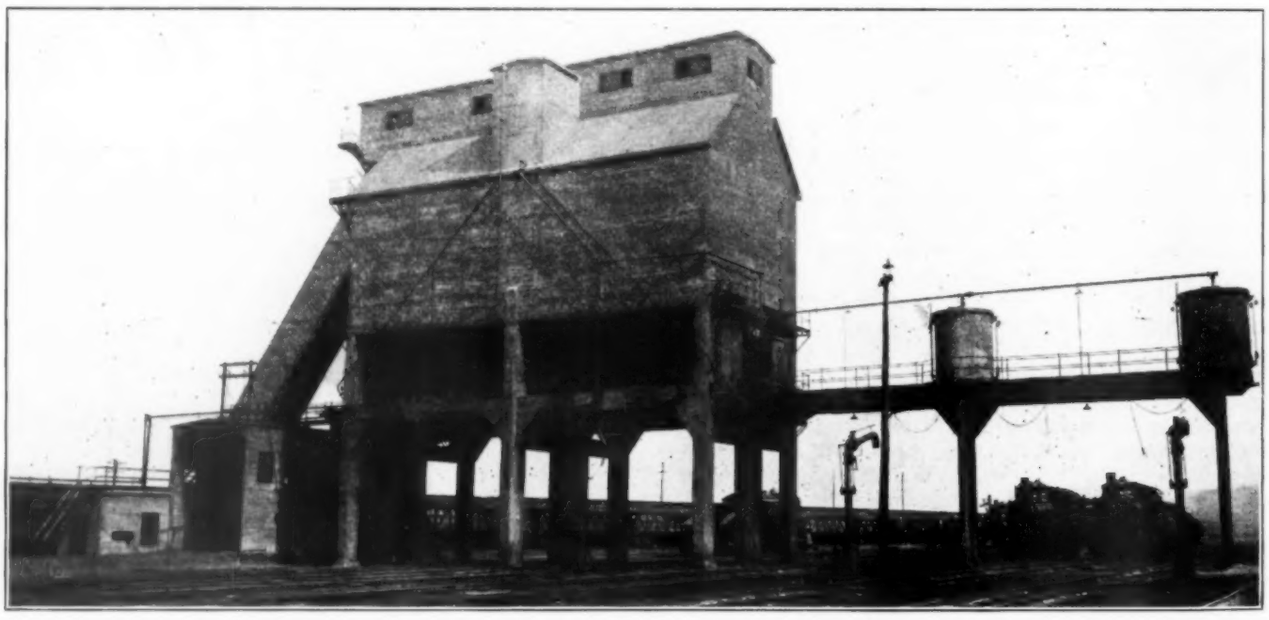
wide by 36 ft. long, covered by a canopy 42 ft. long with enclosing walls on each side. The hopper is provided with a 24-in. beaded flight feeder for positive delivery of coal to a Fairbanks Morse chain-type elevating conveyor with a capacity of 100 tons of coal per hour. This conveyor elevates the coal through an enclosed shaft to the top of the station where it is carried across the top of the bin. Rack and pinion gates in the floor of the trough in which the conveyor runs provide for the dumping of the coal into the two bins at four points in their length. This affords the desired flexibility in replenishing the contents of the bins as they are emptied. The coal-handling equipment is operated with a 40-hp. ball-bearing slip-ring motor. Space is provided in the track hopper pit for a coal crusher but until this is installed the track hopper will be covered with a grid of breaker bars ¾ in. by 4 in. in section spaced so as to provide 8-in. by 12-in. openings.

Weighing and Recording

One of the most distinctive features of the station is the manner in which the plant has been designed to meet the requirements of the Santa Fe for weighing and recording the amount of coal delivered to each engine served, the entire operation, including the lowering of the apron and the opening of the gate, to be performed by a coaling station attendant.



General Elevation of the Coaling Station at Argentine



The Argentine Coaling Station, Track Hopper Shed at the Left and Sand Bins for Oil Burning Locomotives on the Bridge at the Right

On the longitudinal center line of the station just below the coal bunkers and between the two rows of scale pockets is a passageway enclosed in walls with windows on each side and a door at each end to keep out the locomotive gases. This gallery, as seen in one of the photo-

graphs, contains the scale beams and type recorders for the six scale pockets, as well as hand chains and wheels for the control of the aprons and gates of the bins and the weigh pockets. The scales are equipped with both plus and minus beams to facilitate weighing the coal delivered. This will be understood from the following outline of the procedure. At his convenience the attendant fills the pockets to approximately 15 tons by noting the position of the poise on the plus beam. When the locomotive tender is spotted he lowers the apron and fills the tender. Then he moves the poise back until the beam balances and punches duplicate weigh tickets which

Interior of the Attendant's Gallery, Showing the Scale Beams and Control Chains

record the reading on the minus beam, or in other words, the net amount of coal delivered. One ticket is filed at the coaling station and the other is forwarded to the accountant.

The Sanding Facilities

The sand storage and drying plant occupies a position north of the coal delivery tracks a short distance west of the coaling station and is served by a track hopper in the same track. It consists of two reinforced concrete cylindrical tanks 49 ft. in diameter, for the storage of wet sand.

They have a combined capacity of 1,500 cu. yd. or 2,030 tons. They are covered with conical roofs and are supported on a cluster of columns of sufficient height to afford adequate headroom underneath the bottom of the tanks for the sand drying equipment.

Immediately adjacent to the bins is a track hopper 16 ft. by 27 ft. covered with a canopy 33 ft. long housed on the two sides. The hopper is connected by means of a 24-in. belt feeder to a belt bucket conveyor having a capacity of 70 tons of wet sand per hour, driven by a 15-hp. Fairbanks Morse ball-bearing induction motor. The elevator is carried up a vertical shaft to a discharge hopper a sufficient height above the top of the storage bin to permit of a free flow for the sand down two inclined chutes.

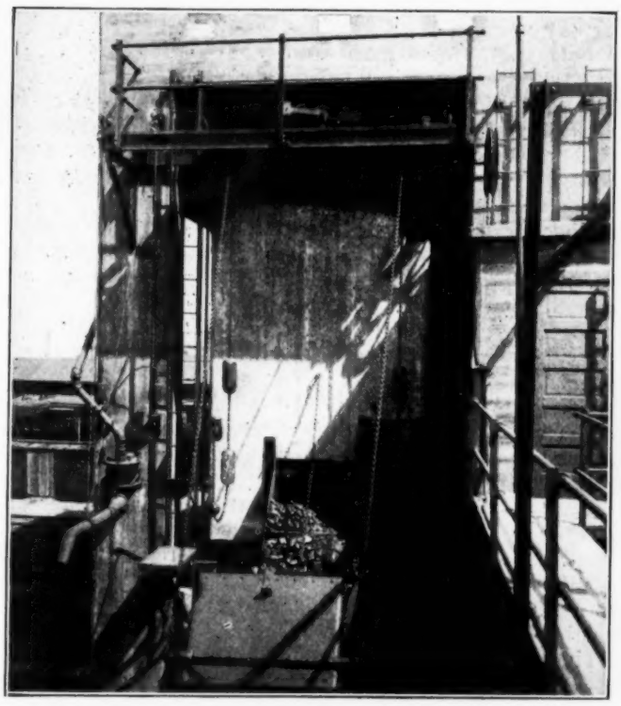
The sand from each bin flows by gravity to two Santa Fe steam sand driers from which the dry sand in turn descends into welded steel drums. From these the sand is blown by compressed air into three dry sand storage bins at the coaling station. One of these with a capacity of 30 cu. yd. is located in the pent house at the top of the coaling station, while the others, of 10 cu. yd. capacity each, are located on the bridge over the tracks for the oil-fired locomotives. From these tanks pipe lines lead to sand spouts serving each track.

As stated above, the structures are of reinforced concrete throughout. They are supported on pile foundations, there being 282 piles under the coaling station and 213 under the sand plant. The pits for the two track hoppers required special consideration because overflow from the Kaw river occasionally reaches approximately to the level of the rails, so that the ground around these track hoppers is occasionally subject to complete saturation with water. To insure dry pits, special pains were taken to secure concrete of the maximum density and in addition the outsides of the pits were provided with a membrane waterproofing.

A Busy Station

The motor drives for the elevating equipment in both the coaling station and the sand plant are equipped with industrial control starting equipment with push button starting and stopping stations at suitable locations. The belt feeders from the track hoppers are driven from the bottom shaft of the elevator so that in the event that the elevator stops for any reason the immediate stopping of the feeder is assured.

The station is a busy one. During one month an



A View of One of the Weigh Pockets and a Delivery Apron

average of 29 coal-fired locomotives and 47 oil-burning engines were turned each day and the coaling station delivered 275 tons of coal and 35 tons of sand to the locomotives. The operation of the combined coal and sand handling plant entails the employment of five men, two each in the shifts from 6 a. m. to 2 p. m., and from 2 p. m. to 10 p. m., and one for the night shift from 10 p. m. to 6 a. m. The plant at Argentine as well as the similar one at Shopton, Iowa, were constructed under the direction of H. W. Wagner, chief engineer, Atchison, Topeka & Santa Fe, Eastern Lines, Topeka, Kan.

Erie Agents Consider Traffic Problems

THE forty-first meeting of the Erie Railroad Agents' Association was held at the Great Northern Hotel, Chicago, on November 19, 20 and 21. Freight claim prevention, the billing of empty cars, employee traffic solicitation, the sealing of cars and instructions governing the handling of freight involved in accidents were among the subjects considered. F. G. Robbins, vice-president at Chicago, outlined the facilities in that city and urged employee solicitation to offset the loss of revenue derived from the handling of coal. D. L. Gray, vice-president in charge of traffic at New York, and F. D. Austin, freight traffic manager at Chicago, also addressed the meeting. Joe Marshall, special representative of the Freight Claim division of the American Railway Association, spoke on freight claim prevention, in conjunction with which, moving pictures were shown through the courtesy of the Chicago, Burlington & Quincy, the Illinois Central, the Norfolk & Western, and the New York Central.

During the discussion of the billing of empty cars it was suggested that they be billed so as to show on the empty car bill the kind of commodity for which the car is suitable. A. E. Pasman presented figures on freight claims which showed a marked decrease for this year. M. J. Callaghan, supervisor of freight claim prevention, made a report on the course on proper boxing and crating given at the Forest Products Laboratory, Madison, Wis.

Figures showing the success of the employee solicitation campaign which was started April 11, 1925, were submitted by W. V. Kennedy, general freight and passenger agent at Chicago. The Chicago region, since April, secured 1,494 routing orders in addition to 620 traffic tips or tips showing where traffic could be secured, with 519 employees participating. The carload shipments covered totalled 2,439 and the l.c.l. shipments totalled 728 while the passenger orders totalled 831. The percentage of traffic tips and routing orders per employee was 4.1.

The report governing the handling of freight involved in accidents suggested that preliminary telegraphic reports of train accidents giving all information possible regarding the freight involved should be submitted by the train conductor to the division superintendent and the division superintendent should notify the general freight claim adjuster at New York, the freight claim adjuster of the region and the chief of police of the region. It also directed that the conductor assume charge of accidents until relieved by competent authority. The report included instructions governing watchmen, the clearing of the main line, the handling of bonded freight, meat, dairy freight, livestock and package freight.

The organization held its first meeting in New York on October 28, 1911, with the object of educating its members to improve Erie service and standardize station work and methods. During each year three meetings are held.

Those authorized to attend the meetings include an average of 85 agents located at the larger stations. The association is under the direct supervision of the vice-president in charge of operation and the secretary devotes his entire time to the business of the association. The association exchanges ideas with the independent division associations which are under the direction of the superintendents. This interchange of ideas and interlocking of membership has aided in accomplishing the purpose of the association. An effort is made at the meetings to familiarize the members with the facilities and methods of handling freight at the cities along the line at which the meetings are held. At the Chicago meeting the members were given the opportunity of riding on the Erie's river freight service and of inspecting the freight station of the Chicago, Burlington & Quincy. They were also afforded the opportunity of inspecting the Illinois Tunnel Company's facilities which handle freight underground at Chicago and the classification yards of the Chicago Junction at Clearing.

Western Carriers File Application for Revision of Class Rates

CARRIERS in the western district, who were petitioners in Docket Ex-Parte 87, petitioned the Interstate Commerce Commission on November 17 for a further increase in revenue by means of a complete revision and readjustment in the class rates in western trunk line territory, including the western and mountain-Pacific groups. No definite increase is asked except that the revenues be increased to more nearly yield a fair return. In support of the application, the carriers allege that the request of the carriers in the western district for an increase of 5 per cent in freight revenues as presented will not produce revenues sufficient to yield a net return of 5¾ per cent and that this failure to produce such return is emphasized by the existing level of class rates within the western trunk line territory. The supplemental application is presented as a means of producing additional revenue and as a method of remedying an improper rate situation.

The application charges that the structure of class rates in western trunk line territory is upon a depressed level and is out of harmony with rate levels in territory contiguous thereto. As a result of this depressed rate level the traffic moving in class rates is not paying its fair or proper proportion of the transportation burdens, and is not fairly contributing to the needed revenues of the carriers in this territory. The class rate structure is not upon any proper or uniform basis of relationship as between classes, as between points of origin and destination or as between groupings of such points as a result of which discrimination exists and will continue to exist until a complete revision of the class rate structure is accomplished.

The petitioners propose that an entire new structure be substituted for the existing class rates in said territory, the lower classes throughout the territory to bear a uniform relationship to the first class rates and the entire adjustment to give full consideration to the service performed.

Such a rate structure would be free from discrimination and, on the level desired, would produce additional needed revenue for the petitioners.

They request that the revision of this class rate structure be made a part of the original proceeding and that it be considered and determined by the commission with all reasonable dispatch. It is requested that the proceedings upon the application of the carriers in the western district for a 5 per cent increase in freight revenues be carried forward to a conclusion in advance of entering upon the consideration of this supplemental application to the end that the urgent necessity of such carriers for increased revenues be not further delayed.

The petitioners ask the commission to consider the evidence introduced by carriers in the original proceedings as applicable to this supplemental application.

Enormous Increase in Florida Traffic

Unprecedented development doubles railway business and causes congestion—Facilities being rapidly increased

THE railroads serving Florida have been facing some difficult problems in their efforts to keep pace with the enormous expansion of their traffic resulting from the unprecedented development of that state. Thousands of people have been rushing into the state daily, attracted by the climate, the agricultural possibilities and, perhaps, even more by the opportunities for real estate speculation, all of which have been called to their attention by unprecedented advertising campaigns, and hundreds of millions of dollars are being expended throughout the state in development programs designed to accommodate the visitors and hold them.

In the past four months there has been an increase in the movement of freight traffic into Florida on all lines of approximately 100 per cent as compared with the same four months of last year, in addition to the large increase in passenger traffic, and approximately $75,000,000 has been spent for additional facilities, including new main lines, classification yards, unloading and passing tracks, motive power and general equipment to give more adequate transportation for the enormously increased traffic.

The business has been growing rapidly for two or three years and the railroads during that time have been expanding their facilities to handle it, but during the past year the influx of people from the north and the demand for building materials and other supplies have assumed boom proportions and, instead of the usual slack season to be expected in the summer, which would have given both the roads and the receivers of freight a chance to carry on their building programs, the summer traffic has exceeded that of any previous winter season and the roads have been obliged to conduct their improvement work under the heaviest traffic, both freight and passenger, they have ever known.

This has naturally led to congestion, late trains and embargoes, particularly as the receivers of freight were no more prepared for such an increase than were the railroads, and every delay in the transportation or unloading of supplies retarded to some extent the preparations for handling more.

Building Programs Cause Heavy Demand

While in the north the frenzied real estate speculation in Florida is the aspect of the situation that probably has attracted the most attention, an enormous development of a solid character is going on and entire new cities are being created, with new harbor and dock facilities, street and road improvements, and large numbers of great hotels, apartment and office buildings, houses, schools, churches, theatres, and golf, bathing and other entertainment facilities, are springing up. This has created an unprecedented demand for building materials, furniture, food supplies, automobile supplies, and other things incident to the wants of a growing population. The large profits to be derived from furnishing such supplies quickly also has led to the movement into the state of large quantities of miscellaneous freight on consignment for which sale is arranged after arrival, and this practice, together with the shortage of unloading and storage facilities, is said to be largely responsible for the congested conditions in the state. Also, while the railroads have been called upon to render a vastly greater service than ever before, they have also suffered the effects of the demoralization and depletion of their forces resulting from the opportunities offered for large profits in land speculation, the competition with the development companies for men, and the difficulty of retaining common labor in the face of competition and wages which make it unnecessary for some men to work every day in order to maintain their usual standards.

As a result of the recent completion of many railroad improvements, as well as of efforts to regulate the traffic by embargoes, the situation has recently shown marked prospects for improvement but meanwhile both the state and its railroads have been experiencing many "growing pains."

Congestion was first experienced on the Florida East Coast, which, when the heavy increase in traffic was first felt, was a single-track road serving the entire east coast of the state, where the first intensive development occurred, from Jacksonville to Key West. Because the Florida East Coast is located entirely in Florida it has been peculiarly subject to the conditions which have prevailed in the state and the statistics which indicate the growth in its business directly reflect the development of the state, although the other lines serving the state have had similar increases in their Florida business and the more northern lines have also been affected. The business of the Florida East Coast has more than doubled in three years and its capital investment has been increased by 35 per cent in that time, by reason of its extensions, double-tracking and other increases in facilities.

The Atlantic Coast Line has also added to its second tracks and terminal facilities and is now engaged on several short extensions, while the Seaboard Air Line has embarked on an extensive program of extending its mileage in the southern part of the state while also increasing its facilities intensively at other points.

The Florida East Coast found it necessary to place embargoes against inbound freight in August, partly because of congestion at the ports where efforts were being made to receive traffic from boats in excess of the terminal capacity.

The embargo was raised between Jacksonville and West Palm Beach on September 1 and on September 18 it was raised on the entire line except for some restrictions on lumber but on September 28 it was put back because a number of shippers had ordered freight beyond their immediate needs. Gradually the congestion spread to the other lines in the central and western parts of the state, which caught the boom a little later than the east coast, and backed up to the lines north of Jacksonville, the principal gateway to Florida.

Both the Car Service Division of the American Railway Association and the Interstate Commerce Commission have been keeping in close touch with the freight situation in Florida and have had agents in the state working with the roads and the receivers and shippers to help bring order out of the confusion that existed for a time. M. J. Gormley, chairman of the Car Service Division, has spent considerable time in the state and Commissioner McManamy and W. P. Bartel, director of the Bureau of Service, of the Interstate Commerce Commission, arrived

at Miami on November 17, making an investigation of conditions at the various terminals.

General Embargo Placed

At a meeting in Jacksonville on October 29 of representatives of all the Florida roads, called by Mr. Gormley, it was decided that, in view of the primary importance to Florida of the movement of citrus and other perishable traffic, which began to move in volume early in November, and to avoid any interference with that movement by the accumulation of other traffic, as well as to provide track capacity for refrigerator equipment, it was necessary to extend to all points in the state a general embargo against the inbound movement of traffic which was already in effect at the larger points. Exceptions were made of livestock, perishables, petroleum and its products, foodstuffs for human and animal consumption, crate material and wrapping material for fruits and vegetables, fertilizer and fertilizer materials.

At that time about 7,000 carloads of freight was being held at Jacksonville and points north, for Florida destinations, that had been loaded prior to the embargoes, and it was decided that this accumulation must be cleaned up in advance of the perishable movement. It was announced that permits would be issued for the movement of general traffic to the extent of the ability of consignees to unload and the railroads to handle it and at the same time insure the prompt movement of perishable traffic. The general embargo did not take effect for 48 hours, however, and the freight that converges at the Florida gateways has been coming from so many different directions and for such distances that the situation on the lines entering Florida from the north was aggravated for several days before the effect of the embargo could be felt appreciably.

The placing of the general embargo and the completion of part of the double-tracking and other improvements soon enabled the Florida East Coast to make a very satisfactory reduction in the accumulation of cars held for it by its connections north of Jacksonville and it asked for another meeting to consider the issuance of permits. Another meeting was held on November 17 and 18 after which Mr. Gormley issued a statement saying that that line generally is in better condition than it has been at any time during the past six months and that it would soon be in a position to issue a reasonable number of permits for the movement of general freight in addition to the traffic that was exempted from the embargo. "This will be gradually increased as the operating conditions warrant," he said, and "it is believed that within the near future it will be possible for the Florida East Coast to move traffic to meet the immediate requirements."

"The Florida state-wide embargo issued by the other Florida lines October 29th has not been in effect a sufficient length of time to materially reduce the accumulation for points on the other Florida lines," the statement continued, "but it is the opinion that the larger part of the traffic loaded prior to the embargo has now moved up to these lines and their immediate connections and that the peak has passed. It is believed that it will soon be possible to issue permits and continue this in increasing volume until freight for immediate requirements will be more nearly met than at any time in the past several months. It will not be possible to issue permits for the movement of sand, clay, rock and gravel prior to December 1 and the reduction made in the accumulation of traffic will have to govern as to what can be done in the movement of these materials after that date. With the reduction of the accumulation and the issuance of permits in increasing volume the interests of the state of Florida, receivers of traffic and the railroads generally, may best be served by the applicants for permits curtailing their requests to immediate requirements and making no attempt to secure permits for adding to stocks not immediately required."

On November 23 the Car Service Division issued a bulletin saying in part:

"The accumulation resulting from the excessive demands for transportation of freight to Florida which, for the past several weeks has been regulated by embargo with certain essential exemptions, has been relieved to such an extent that some of the traffic previously withheld may now be forwarded subject to the 'Permit' arrangement outlined in the embargo.

"That the maximum transportation efficiency shall prevail it is essential that these permits shall be handled and policed in a uniform way. They must be issued only by the destination railroad and must in such instances be based upon the actual current requirements of the consignee and also upon the ability of such consignee to promptly unload at destination."

Then followed a detailed statement of the arrangements which will, effective at once, govern the issue and handling of permits as provided in outstanding embargoes of the Atlantic Coast Line, Florida East Coast, Seaboard Air Line and Southern.

Also a notice was issued to shippers which included the following:

"All shippers are more or less familiar with the critical situation prevailing in Florida, and that embargoes controlling traffic have been in effect for several weeks. It is not possible to forecast the length of time it will be necessary to maintain restrictions against shipments into this territory. Notwithstanding the very heavy expenditures the railroads have made, for extension of transportation facilities, it has not been possible to keep abreast of the requirements. The embargoes have been in effect a sufficient length of time to permit the railroads to materially reduce the congestion, and additional shipments may now be made subject to the 'Permit' provisions of outstanding embargoes."

Much of the difficulty has been caused by inability to receive and unload freight after it has been delivered by the railroads and there have been shortages of drays or trucks and men to handle incoming l.c.l. freight. Automobile dealers advertise "Buy a Truck and Help Relieve the Freight Congestion," but trucks are among the things that have been delayed. Florida newspapers have recently published several stories of consignments of trucks delivered at cities in the northern part of Florida which have been sold at once to be driven further south under load.

Partly because of the crowded conditions on the railroads and partly because of lower water rates on heavy low grade freight, a large volume of freight is being shipped into Florida by boat and boat lines have been putting on additional passenger vessels, while some of the larger development companies have chartered vessels for building materials, but the dock and port facilities are inadequate and many delays have been encountered there. A number of boats laden with greatly wanted supplies were tied up outside Miami for weeks.

Jacksonville a Bottle Neck

A large part of the traffic for Florida must pass through Jacksonville, where the Atlantic Coast Line, Seaboard and Southern converge, and the Jacksonville terminal has been a busy place. Some 162 passenger trains pass through it daily, some in two or three sections and carrying from 12 to 18 cars. The principal through trains have been running in several sections. This terminal is now being enlarged by the addition of five through passenger tracks and the Seaboard Air Line has recently taken an important step to reduce the pressure by constructing a cut-off from its line north of Jacksonville to Baldwin so that its freight may move south without passing through Jacksonville. From Jacksonville the Florida East Coast runs south, while the Atlantic Coast Line and the Seaboard serve the more central and western parts of the state, although the latter's new line built last year crosses the state to West Palm Beach, and the Coast Line also has lines entering the state at points farther west, via

Thomasville and Dupont, Ga. The Seaboard also has a western line via Tallahassee.

Increase in Operating Revenues

The extent of the increase in Florida business is indicated by the following table, showing the total operating revenues of the three principal Florida lines for the nine months of 1925 now available and the corresponding period for the three preceding years:

	1925	1924	1923	1922
Atlantic Coast Line.....	$67,865,427	$60,993,066	$59,390,359	$51,464,507
Florida East Coast.....	20,716,081	14,597,204	11,972,399	10,213,238
Seaboard Air Line....	44,985,235	39,046,908	38,291,505	32,734,520

Officers of the Florida railroads, while recognizing the speculative aspects of the present boom, have expressed confidence in the continuance of a constant and steadily increasing development in the state which will make for permanent progress. The state has some 35,000,000 acres, of which only about 2,000,000 are now developed, and S. Davies Warfield, president of the Seaboard Air Line, at the recent hearing on the application of his road for a certificate for the construction of additional lines, expressed the opinion that 22,000,000 acres are capable of development. The aggregate banking resources of the state have increased from $225,000,000 in 1921 to $658,000,000 in 1925, an increase of 192.5 per cent. The increase in building permits issued in the state during the past year has exceeded that of any other section. The citrus fruit and other carload perishable freight movement out of the state for the season of 1924-1925 amounted to 85,343 cars, having doubled in 10 years, and the state has a great advantage in the production of winter and early spring vegetables that find a ready market in northern cities.

The population of Florida is estimated to have increased about 30 per cent between 1920 and 1925 but there has been an enormous increase this year and population figures for many towns and cities show increases of several hundred per cent. The Florida state agricultural department estimated on the basis of last year's figures that 1,200,000 people would come to Florida in 1925, including 700,000 by train or boat and 500,000 by automobile.

Miami is said to have grown from 50,000 to 250,000 population in 5 years and its officials are talking about a million population in a few years. Accommodations for 100,000 additional people by the end of the year are said to be under construction now and it is claimed that 2,000 persons are arriving daily. The company developing the Coral Gables property near Miami, where an entirely new city of 16 square miles is being built, states that it has expended $50,000,000 in construction and development work and has projects calling for the expenditure of approximately $100,000,000 in the next five years. It was advertised that it had sold over $69,000,000 worth of property this year up to about the first of November.

Improvements on the Florida East Coast

The Florida East Coast has been engaged in an extensive program of increasing its facilities for the past two or three years, and the double-tracking of its main line from Jacksonville to Miami, 346 miles, was authorized in March, 1924. The work was organized and part of the double-tracking completed in the latter part of 1924 and 120 miles of the new second main track was placed in service by November 1 this year, while it was expected that 230 miles would have been completed by the end of the month. The new double-track bridge over the St. Johns River at Jacksonville, which has been under construction for three years and has been one of the largest pieces of bridge work under way in this country, has just been put into operation. The Moultrie cut-off, a 30-mile double-track main line with a 0.3 per cent grade, is being constructed between St. Augustine and Bunnell, which will shorten the route for through traffic, both freight and passenger, by 20 miles.

The new second track to be completed in November includes the line between Jacksonville and Bunnell, 68 miles; between Daytona and Bonaventure, 70 miles; from Indrio to White City, 10 miles; and from a point just north of Jupiter Inlet to Miami, 83 miles. Work on double-tracking the remaining 116 miles of the line between Jacksonville and Miami is already under way and materials have been ordered with the expectation that the new track can be placed in service by August 1. Also 160 miles of new automatic block signaling is expected to be in operation by the end of the year and automatic signal work will be carried on on the remaining parts of the second track so that it may be placed in service on the entire line from Jacksonville to Miami by the latter part of next summer.

In the latter part of October there was placed in service the first section of the Bowden yard, just south of Jacksonville, a modern freight yard about three miles long and having a capacity at present for about 3,500 cars. The work of completing this to its ultimate capacity of 5,000 cars is already under way. Just outside of Miami another large modern freight yard, known as the Hialeah yard, is under construction and the first unit was put in service this month with a capacity of 2,500 cars. Work to complete it to its ultimate capacity of 4,500 cars will be prosecuted without interruption. The Miami Belt Line, involving about 20 miles of new track encircling the city of Miami on the north and west sides, has just been completed.

The north leg of this line, about 9 miles, is being double-tracked, while the west leg will be single track. Operation of this belt line will relieve the crowded condition of the present main line and remove the cause of congestion through the heart of Miami. At St. Augustine the company is building the first unit of the Miller general repair shops and work will progress steadily until it is finished. Plans are also being made or work being carried out for extensive improvements to the division freight terminals at New Smyrna and Fort Pierce.

About 35 miles of the Okeechobee-Miami extension, a new line through the Everglades, was placed in service a few weeks ago and the work of continuing the extension into Miami, which will give two lines between New Smyrna and Miami, will be carried out steadily during the coming year. The work of increasing the team track and freight station facilities is also being carried on as fast as labor can be obtained. The team track capacity at Miami has been enlarged from 420 to 625 cars since July 1. The company has imported some 6,000 men from points all over the country.

The Florida East Coast also has been adding to its motive power and equipment. Between April and November it added 49 of the most modern type high capacity locomotives, about 62 steel passenger coaches, 30 baggage cars, 6 dining cars, 20 cabooses, two 150-ton wrecking cranes with pile drivers, and other miscellaneous equipment.

During the first nine months of this year the aggregate tractive effort was increased 110.7 per cent.

During the summer and fall the Florida East Coast has been handling nine through passenger trains, averaging about 210 passengers per train, in each direction, often in sections, in addition to mail and express trains, and during the winter it expects to run 14 passenger trains in each direction. Last winter it ran eight passenger trains each way a day. Whereas last winter the greatest number of passengers handled southbound in a single day on the Florida East Coast was 2,206, on one day in August this year it handled 3,039.

Atlantic Coast Line Improvements

The Atlantic Coast Line is just closing up its double-tracking work north of Jacksonville so that by December 1 it will have double track all the way from Richmond, Va., to Jacksonville, all equipped with automatic block signals. It is also double-tracking 14 miles south of Jacksonville and 12 miles north of Sanford and putting in new terminals including yards, shops, etc., at Lincoln and at Uceta, just north of Tampa. It is also putting in 14 passing tracks between Jacksonville and Tampa and has just completed 12 passing tracks in the Lincoln district and some between Lincoln and Fort Myers. A large yard is being built at Ocala and additional tracks between St. Petersburg and Trilby. Telephone train despatching circuits have recently been completed from Jacksonville to Tampa and from High Springs to Lakeland.

An extension under the name of the Fort Myers Southern is now in operation from Fort Myers south to Bonita Springs and it is proposed to extend it further south to Naples. The company also has recently applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from the end of its Thomasville branch at Monticello, Fla., to Perry, Fla., 41 miles, which will open a new through line from Tampa and other west coast Florida cities to the middle and north west via Albany and Atlanta and, with the Louisville & Nashville, by Montgomery and Chattanooga. The commission has recently authorized an extension from the southern terminus at Immokalee to Deep Lake, 27 miles, to be completed during 1926.

The Atlantic Coast Line has had an increase of over 100 per cent in its Florida business over that of last year, which was also large. It has been handling as many as 62,000 cars of perishable freight a year, including 34,000 cars of citrus fruit. It has also had a large increase in its tonnage from the west via Montgomery, Ala. During the season the Atlantic Coast Line handles 400 to 600 cars a day of perishable freight north out of Florida. This movement has recently begun and early in November was running at over 100 cars a day. The lime rock traffic has also increased enormously because of the large amount of roadbuilding work going on and amounts to 250 to 400 cars a day. The road also handles large quantities of phosphates and has put as much as 125,000 tons a day over the 26 mile line between Winslow and Fort Mead.

The Atlantic Coast Line has been handling 200 to 220 Pullman cars daily into Florida and has been running 35 trains a day into and out of Jacksonville. This number will be increased in the winter season. The Florida Special is now running in three sections. Between Jacksonville and Folkston, Ga., the company is operating 46 scheduled trains daily.

The road experienced considerable congestion during the summer at Tampa, which has had an enormous development, but after the unloading facilities had been increased at that point there was a great improvement. Other cities which are experiencing a rapid growth are St. Petersburg, Clearwater, Sanford, Bradenton and Sarasota.

Seaboard Air Line Extends Its Mileage

Last year the Seaboard Air Line built the Florida Western & Northern from Coleman, on its main line, to West Palm Beach, 204 miles, opening up a new territory for development and in addition providing a short route across the state from Tampa on the west coast to West Palm Beach on the east coast, permitting the Seaboard to give through service between southern Florida and northern cities. This was completed in about 9 months and was opened on January 25, 1925. Since then it has continued its expansion program and on November 12 the Interstate Commerce Commission issued a certificate authorizing the construction of 213 miles of new lines in Florida, through its subsidiary the Seaboard-All Florida, including one from a connection with the Florida Western & Northern at West Palm Beach south to Miami and Florida City, 100 miles, paralleling the Florida East Coast; and lines on the west coast from a connection with the Charlotte Harbor & Northern, which it had acquired, near Fort Ogden to Fort Myers; from Fort Myers to the South bank of the Estero river where a connection with the proposed line of the Naples, Seaboard & Gulf is contemplated; from Ft. Myers east along the Caloosahachie river in the direction of Labelle, and from a point on the proposed Fort Myers-Estero line westerly to Punta Rassa. The Naples, Seaboard & Gulf was also authorized to build from the contemplated connection with the Fort Myers-Estero line at the Estero river to Naples.

Officers of the Florida East Coast and the Atlantic Coast Line appeared at the hearing on invitation by the commission and stated that they were able to handle or make provision for handling the traffic of the sections to be served by the proposed lines and that public convenience and necessity did not require the additional lines, but they testified that they did not desire to protest against the granting of the application and the governor of Florida and various city and county officers and representatives of commercial organizations in the sections to be served appeared in support of the application.

President Warfield stated at the hearing that the extension of the Seaboard's mileage in Florida was necessitated not only by the demand for additional transportation facilities but in part to protect its position because of the working relations between the Atlantic Coast Line and the Florida East Coast and because the Interstate Commerce Commission's tentative consolidation plan allocated the Florida East Coast to the Atlantic Coast Line system. At the hearing it was stated that the construction of the Florida, Western & Northern had resulted in a large amount of cross-state travel, greatly exceeding the estimates, that much freight had been trucked from its terminus at West Palm Beach to points on the Florida East Coast even as far as Miami, and that the proposed extension would hasten the development of southern Florida by opening a new source of supply for concrete, sand, crushed rock, lumber and other materials as well as a new route out for perishable traffic. It was pointed out that the traffic of the Seaboard's Florida division had increased 96.9 per cent in net ton-miles in nine months of 1925 as compared with the corresponding period of the year before.

Recently Seaboard officers have been quoted as saying that the extension to Miami would be abandoned unless local property owners fulfilled their promises to donate the necessary right of way.

In addition to the lines it has built, the Seaboard has acquired the Charlotte Harbor & Northern, with extensive terminals on the Gulf of Mexico; also the Tavares & Gulf, and recently it has entered into an agreement looking to the acquisition of the Tampa & Jacksonville. It has also been working on the closing of the 22-mile gap between Brooksville and Inverness, thus giving a second line out of Tampa and St. Petersburg; the new cut-off between Baldwin and Gross, 37 miles; has done some double tracking on the Jacksonville-Tampa line and between Waldo and Baldwin, besides extensive transfer and yard facilities at Baldwin and Wildwood, lengthening and installing additional passing and side tracks, and has purchased 50 new locomotives and other equipment.

The Seaboard is also making an unprecedented record for automatic block signal installation on 253 miles of single track between Richmond, Va., and Hamlet, N. C., which is expected to be put in service in three sections by December 1, January 1 and February 1.

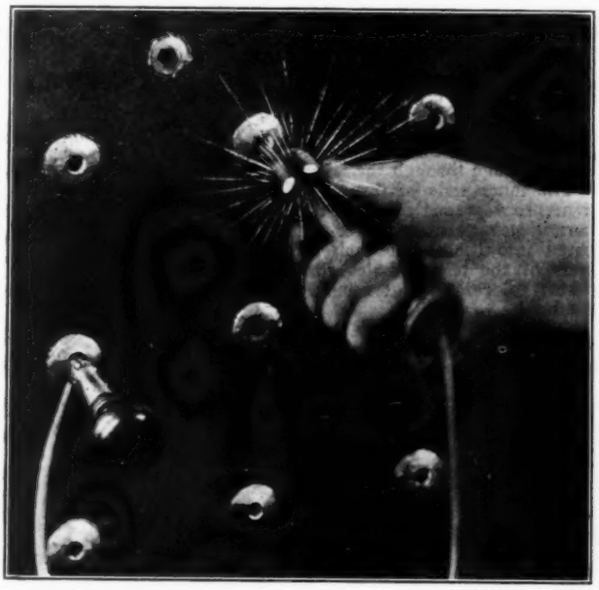
Modern Staybolt Inspection Methods*

Device obviates necessity of removing caps from flexible staybolts for periodic inspection

By E. S. Fitz Simmons

Sales Manager, Flannery Bolt Company, Pittsburgh, Pa.

THE development of the flexible staybolt in this country dates back to about 1890, and early experimentation was stimulated by the enormous number of breakages which occurred in the rigid type of staybolt. Probably the first type of flexible staybolt which could be readily inspected without removal was one of the round headed design, using a sleeve and removable cap,



Electric Flexible Staybolt Tester, a Light in the Handle of Which Indicates that the Telltale Hole is Open the Full Length

which was designed by John B. Tate of the Pennsylvania and introduced by the Flannery Bolt Company about 1904.

This design gave promise of eliminating many of the weaknesses of former types and provided a means, though an expensive one, of ascertaining the condition of the bolt without removing it from the boiler. For these reasons it was quite generally tried out by many railroads and the results obtained were so satisfactory that its adoption and general use almost immediately followed.

In 1905 a committee of the American Railway Association reporting on flexible staybolts said of it: "Though of comparatively recent date, it has been received with great favor, indicating the rapidity with which a new bolt of promising design is given a practical trial in the effort to cure the staybolt trouble." Further in this same report the committee stated the following: "A simple means of positively detecting cracked and broken bolts is an improvement needed by all flexible bolts that are in service at the present time. The removal of the cap, which will allow an examination of the bolt, is the only absolute means possible with flexible bolts of the present design."

In 1911 the act commonly known as the Locomotive Boiler Inspection Law became effective, under authority of which rules requiring among other things the removal of caps from flexible staybolts for inspection purposes at special stated intervals, were promulgated and enforced.

The generally satisfactory service rendered and the very small percentage of breakage to total number in service (this type having become practically standard) created a doubt in the minds of many railroad mechanical officers of the justification of such a rule or requirement, and it was quite generally, and for a time quite strenuously, opposed. However, the Locomotive Inspection Bureau, through its corps of inspectors, had indisputable evidence of the necessity for thorough and regular inspection, for while it was admitted that the percentage of breakage to the total number in service was small, it was shown beyond question of doubt that in certain instances breakage did occur to such an extent as to become a menace to life and property.

Investigations were begun to determine the cause of breakage in an endeavor to apply a remedy. A number of investigations confirmed the absolute necessity for careful and frequent inspections and also clearly demonstrated the need of a more accurate and positive method of test than the mere removal of the caps and an examination of the bolt heads.

Instances were found where, under bad water conditions, accumulations of scale between the body of the bolt and the inner wall of the sleeve were such as to solidly lock the bolt in the sleeve. The result was to render ineffectual the flexible feature and to cause the bolt to break at the firebox sheet.

During the past ten years, and more diligently during the past five years, after these abnormal conditions had been prominently developed, constant effort has been made to perfect a method of inspection that would provide greater safety and insure against loss of life, injury to persons and damage to property.

The first actual service test of such a method was made in August, 1920, on large Mallet type locomotives where abnormal conditions existed and where breakage of flexible bolts was excessive. This method consisted of the installation of flexible bolts with telltale holes extending from the firebox end entirely through the body section and terminating within the bolt head, and the testing of these bolts at regular intervals with a specially constructed instrument to determine definitely that the telltale holes were open and, therefore, operative throughout their entire length. This was accomplished by so constructing the instrument that an electrical circuit would be established when contact was made with the extreme inner end of the telltale hole.

Application of Telltale Flexible Bolts

The telltale flexible bolt is identically the same as the Tate bolt, with the addition of a telltale hole extending

*Abstract of a paper presented at a meeting of the Southern Railway Club, Atlanta, Ga., September 17, 1925.

through the entire length of the body section and terminating within the head of the bolt. The walls of the telltale hole are copper-plated to prevent rust or corrosion within the hole and to prevent them from becoming closed from this cause.

They are applied exactly the same as the ordinary flexible bolt. If the method of riveting closes the end of the hole, it may easily and quickly be re-opened, after which a porous fireproof closure is applied that will prevent the accumulation of foreign matter from entering the telltale hole and that will permit leakage of steam or water in case of a break or fracture, which serves as a daily indicator of the condition of the bolt.

Inspection of Telltale Flexible Staybolts

In addition to depending on the leakage through the telltale hole, an inexpensive method of periodically checking up the condition of the telltale hole is provided as follows:

The fireproof porous closure is first removed, after which the specially constructed testing instrument is inserted. Upon reaching the extreme end of the telltale hole and making contact therewith, a light flashes in the handle of the tester indicating that the hole is open and, therefore, operative throughout its entire length.

The method of testing has been built upon the fact that a broken bolt having a telltale hole will show leakage of water or steam, providing the telltale hole is open and operative and that it extends to every breakable part of the bolt.

The tester is so designed and constructed that it will positively indicate whether or not the telltale holes are open throughout their entire length. After inserting the tester in each telltale hole and securing light in the handle, if the bolt is broken or fractured into the hole, leakage will occur when water pressure is applied to the boiler.

The present method of inspection requires from three to four or more days, the principal part of the work being the removal and replacement of parts, rather than the actual time required by the inspector to examine the bolts.

By the new method herein described, it is not necessary to touch or remove anything on the outside of the boiler and the entire test on a modern locomotive boiler containing a full installation of flexible bolts can be completed within an eight-hour day and at a labor cost of from $10 to $20, depending on the size of the installation.

The cost to strip, remove caps, inspect, and replace runs from $100 to $250, depending upon the size of the locomotive and upon the facilities at hand and, in addition, results in two, three, and sometimes more, days loss of engine service.

The principal advantages of the new method of inspection are: Greater safety by constant daily indication of bolt conditions; material reduction in maintenance costs by reason of eliminating a vast amount of labor now required under the old method of inspection, and a substantial saving in locomotive service by reason of being able to make inspection by the new method at the time of the regular annual hydrostatic test and without additional loss of locomotive service.

A number of railroads have been using the new method of inspection just described for some time, irrespective of the fact that the government had not yet approved it, because they were convinced that it added such an immeasurably increased factor of safety that it would more than compensate for the additional cost of this method of testing, in addition to complying with the Interstate Commerce Commission rules that require the removal of caps every two years. The Locomotive Inspection Bureau, however, has been fully aware of the use of this new method for the last four or five years, has been checking up the results carefully, and when a number of the railroads that have been using this method of inspection for some time made an application for a modification of Rule 23, careful consideration was given with the result that, at a general session of the Interstate Commerce Commission held at its office in Washington on July 26, 1925, it was ordered that Rule 23 as approved in the order of the commission entered April 7, 1919, be amended to read as follows:

23—Methods of testing flexible staybolts with caps.

Except as provided in paragraph (b), all staybolts having caps over the outer ends shall have the caps removed at least once every two years and the bolts and sleeves examined for breakage. Each time the hydrostatic test is applied, the hammer test required by Rules 21 and 22 shall be made while the boiler is under hydrostatic pressure not less than the allowed working pressure.

(b) When all flexible staybolts with which any boiler is equipped are provided with a telltale hole not less than 3/16 in. nor more than 7/32 in. in diameter, extending the entire length of the bolt and into the head not less than one-third of its diameter and these holes are protected from becoming closed by rust and corrosion by copper plating or other approved method, and are opened and tested, each time the hydrostatic test is applied, with an electrical or other instrument approved by the Bureau of Locomotive Inspection, that will positively indicate when the telltale holes are open their entire length, the caps will not be required to be removed. When this test is completed, the hydrostatic test must be applied, and all staybolts removed which show leakage through the telltale holes.

The inner ends of the telltale holes must be kept closed with a fireproof porous material that will exclude foreign matter and permit leakage of steam or water, if the bolt is broken or fractured into the telltale hole. When this test is completed, the ends of the telltale holes shall be closed with material of different color than that removed and a record kept of the colors used.

(c) The removal of flexible staybolt caps and other tests shall be reported on the report of inspection Form No. 3, and a proper record kept in the office of the railroad company of the inspections and tests made.

(d) Firebox sheets must be carefully examined at least once every month for mud burn, bulging and indication of broken staybolts.

(e) Staybolt caps shall be removed or any of the above tests made whenever the United States Inspection or the railroad company's inspector considers it desirable in order to thoroughly determine the condition of staybolts or staybolt sleeves.

A Purchasing Agent and His Friends

THE dinner given in honor of W. P. Dittoe, purchasing agent of the New York, Chicago and St. Louis (Nickel Plate) railway, in Cleveland on November 19, was an occasion of unusual character. Mr. Dittoe has a record of having served on the Nickel Plate 45 years, which covers the entire history of the property. He began as a draftsman in the engineering department when the railway was being built and was in the engineering department for 18 years. He has now been purchasing agent for 27 years. He will celebrate his seventieth birthday on Christmas day, and this suggested to his friends the idea of giving a dinner in his honor.

During his long career as purchasing agent he has had dealings with railway equipment and supply companies of all kinds throughout the country. The Committee on Arrangements, of which J. A. Boyden, Manager, railroad department of the Van Dorn Iron Works Company, was chairman, consisted principally of railway supply manufacturers, and A. L. Humphrey, president of the Westinghouse Air Brake Company, acted as toastmaster. Railway officers and railway equipment and supply manufacturers to the number of about 500 came from cities all over the country to attend the dinner.

J. J. Bernet, president of the Nickel Plate system, made a short address outlining Mr. Dittoe's long career with the road and paying tribute to the ability and integrity he had shown while serving under five different presidents. C. E. Denney, vice-president and general manager of the Nickel Plate, concluded his remarks by presenting to Mr. Dittoe several presents that had been bought for him by his friends. Samuel O. Dunn, editor of the *Railway Age*, delivered an address entitled "The Purchasing Agent and His Friends." It was chiefly a discussion of the relations between the railways and their officers, especially their purchasing agents, on the one hand, and of the railway equipment and supply companies, on the other hand, in which he emphasized the mutuality of interest between the railways and the concerns from which they make purchases.

"A purchasing agent, like other men," said Mr. Dunn, "has friends with whom he has no business, but only personal relations, and also friends with whom he has both business and personal relations. Some sentimental highbrows will say that a man cannot have real friends among those with whom he does business because the relationship of buyer and seller, for example, is such that selfish interests must assert themselves on one or both sides, and that true friendship is incompatible with the assertion of selfish interests.

"This would be most unfortunate if it were true. Engaging in business is just one way of making a living, and since a great majority of mankind devote most of their waking hours to the task of getting a living for themselves and their families, it would be sad, indeed, if there could not grow out of the relations formed between men in getting their living sentiments and feelings which would contribute something toward their happiness. But there is nothing inherently more sordid in the pursuit of business than in any other pursuit, and out of men's dealings with each other in business there grows as fine friendships as out of any other of their relations in life.

"The reasons for this cannot be better illustrated than by reference to the way in which those who make purchases for the railways, and those who make and sell the equipment and materials they buy, deal with each other. It is often assumed that there must be a conflict rather than a mutuality of interest between buyer and seller. In the main, however, that assumption is false. The truth is that when fairness and honor actuate, and intelligence guides the buyer and seller, each of them serves the other. The railway has need of constantly improved equipment and materials and of opportunity to buy them at reasonable prices. It cannot function efficiently without them. The equipment and supply manufacturing companies exist to furnish the locomotives, the cars, the specialties, and the materials that the railways require. There has been in the United States the greatest development in proportion in the manufacture and merchandising of railway equipment and supplies that has occurred in any country because our railways have confined themselves more than those of any other country to their primary function of furnishing transportation, and, therefore, to a greater extent than almost any other railways have left open the field for the making of railway equipment and supplies to other concerns.

"Whether American railways, on the one side, and American railway equipment and supply manufacturers, on the other side, have performed economically and efficiently the functions they have respectively assumed is best answered by a statement of the indisputable fact that in this country there is rendered the best and most economical railway service in the world. The managers of the railways, on the one side, and the managers of the equipment and supply manufacturers, on the other side, have co-operated together in this achievement.

"The purchases of equipment, materials and fuel made by our railways now exceed two billion dollars annually. That is a sum so vast that it staggers the imagination. It is equal to the total expenditures of the United States government, exclusive of interest on its indebtedness. Numerous railway officers offer the suggestions, draw up the specifications and make out the requisitions which result in these purchases. The purchasing agent in numerous cases himself decides what things shall be bought, and in almost all cases conducts the negotiations which result in the determination of what prices shall be paid. The duties of the purchasing agent of a railway are, in consequence, very laborious and extremely important, and his responsibilities are very great. His value to the railroad depends upon the knowledge of market conditions, the vigilance and the trading ability shown by him in getting equipment and materials at prices reasonable in proportion to their quality and worth. On the other hand, the value to their own concerns of those who represent the equipment and supply companies in negotiating with the purchasing agent depends upon the skill shown by them in presenting the merits of their goods and in getting reasonable prices for them.

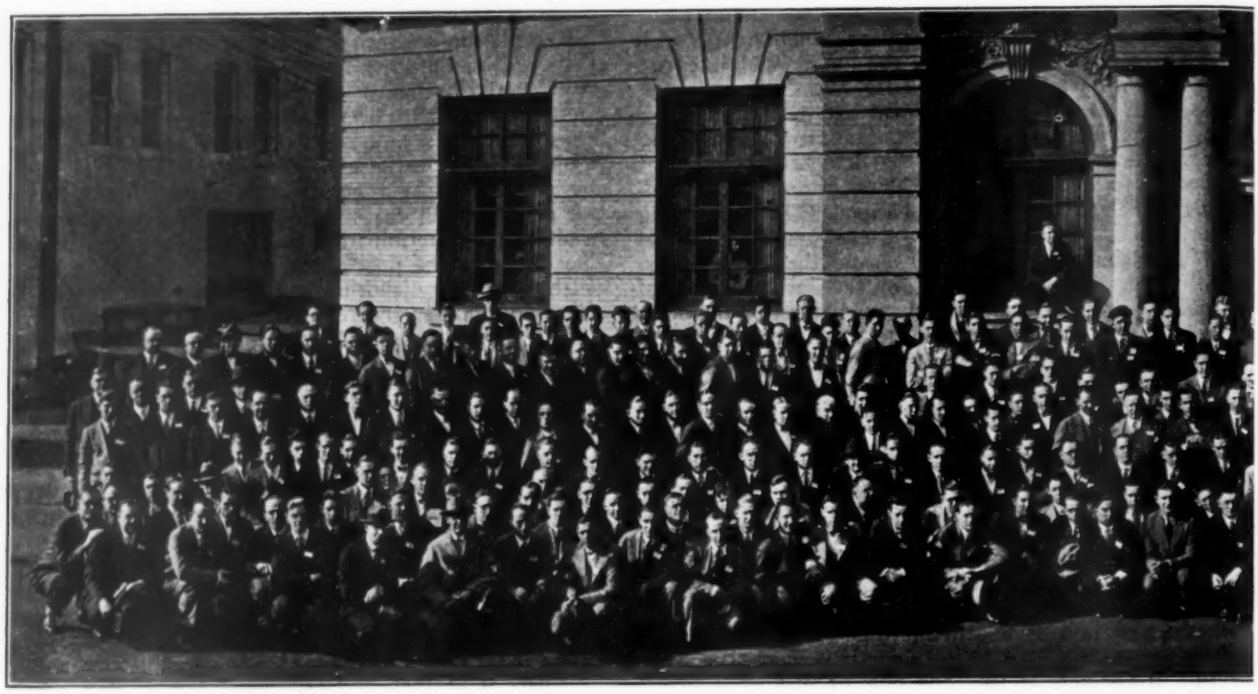
"It is my observation that, according to their ideals, business men may be roughly divided into two classes. There is a class who think apparently that the measure of a man's ability is his success in 'putting things over,' as the slang phrase goes.

"There is another, and very much larger, class who do not try to 'put things over,' unless occasionally in retaliation for things that have been put over on them. They do not try to 'do others before others do them,' but in a very real sense try to carry out that rule, which is the golden rule of business as well as of life—the rule of dealing with others as they themselves would like to be dealt with. They are engaged in truly creative work, directly for their own advantage, but indirectly and more largely for the benefit of the entire public, which is dependent for its material welfare upon the successful management of business. If they are buyers for a railroad they try to get what their company needs, and they try to get it at reasonable and not at cut-throat prices. If they are selling, they try to have for sale the best things of their kind on the market and to get for them, not exorbitant prices, but prices reasonable in proportion to cost of production to the utility and value of the thing they are selling.

"Even when the buyer and seller are reasonable and honorable men, there will inevitably arise differences of opinion between them as to what are the best goods or devices for a particular purpose, and as to what prices should be paid for them. When, however, there is intelligence, reason and honor on both sides, the negotiations to which these differences give rise are bound to create mutual confidence and respect. Here, then, we have mutuality of interest, of confidence and of respect, and there can be no better foundation for real friendship than they afford.

"I know many railway purchasing officers, and I know many of the railway supply men with whom they do business. There are men among them on both sides of the 'put it over' class. But business men of the right kind largely predominate among purchasing agents and those with whom they do business. It is a tribute to the character and good sense of most of the railway purchasing agents of this country that they have numerous true and warm friends in the railway equipment and supply industry with whom they constantly have business dealings."

Mr. Dittoe, in his talk, paid tribute, based on his long observation, both to the business methods of the equipment and supply companies and the great contribution they have made to the improvement and development of the equipment and other facilities of the railways.



The Third Annual Younger Railroad Men's Conference

Younger Railroad Men at Pittsburgh

Delegates from 46 roads discuss vocational and other problems at third annual conference

THE third annual younger railroad men's conference was held at East Liberty, Pittsburgh, Pa., on November 20-22, under the auspices of the Railroad Y. M. C. A. Delegates, totaling 238, representing 46 railroads, 31 states and 2 Canadian provinces, were in attendance. In addition there were present 118 Y. M. C. A. leaders, speakers and local committeemen in charge of arrangements.

The program of the conference was designed, in the words of G. K. Roper, senior secretary of transportation of the National Council of the Y. M. C. A., to promote the following:

1. Acquaintance among young railroad men from all over the continent.
2. Knowledge of the importance and dignity of the transportation industry.
3. Promotion of the ideal of service in the life work of the delegates.

Nature of the Program

Specifically, these ends were fostered in the agenda by talks and discussions along the following general lines:

1. Having a purpose in life and studying one's job.
2. Learning about the size of the transportation industry and what the nation owes to the railroads.
3. Improved social relationships, particularly between boys and girls.
4. Vocational guidance—advice by railroad officers as to how to succeed in the several branches of service chosen by the boys.
5. Spiritual and inspirational talks and discussions to encourage looking on problems in industry from a standpoint of the Golden Rule.

Older Men in the Background

The older men in attendance kept in the background as much as possible, seeking to serve only when needed rather than to assume the direction of the proceedings. While the meeting was arranged for by the Railroad Y. M. C. A., delegates were sought from roads and from points where there are no such organizations and many such were in attendance. Some of the railroads which have shown great interest in these meetings paid the expenses and allowed regular wages to boys who attended. Other delegates came at their own expense entirely—except that they were provided with passes by the railroads.

The delegates were housed without charge with private families, whose co-operation was enlisted by the East Liberty Y. M. C. A. Railroad officers of roads centering in Pittsburgh went to considerable trouble to help in various ways, serving on committees and acting as advisors to boys interested in the branches of railroad work in which they were engaged.

Dr. Munn's Address

The conference was opened on Friday afternoon. Warren King, a clerk in the office of the president of the Great Northern at St. Paul, one of the delegates, pronounced the invocation. The opening address was delivered by Dr. J. P. Munn, the venerable chairman of the Transportation Department of the Y. M. C. A. Dr. Munn told the

delegates that the purpose of the meeting was to help them in their chosen vocations and in the development of character. "It is unfortunate," he said, "for a man to get nothing out of his job but his pay." The conference, he added, aimed to help the boys to find the type of jobs for which they were best suited, to show them ways of learning more about these jobs and how to succeed in them and, to develop the proper attitude toward their employers, fellow-employees and mankind in general.

The chair at the opening session was occupied by Bert L. Greene, a vice-president of last year's conference, in the absense of last year's president, P. L. Yarborough, who was not able to attend. Officers for the Pittsburgh conference were elected as follows: Warren King (clerk, president's office, Great Northern, St. Paul), president; C. E. Hardy (pattern maker apprentice, Southern Pacific, Sacramento) and B. E. Kelley (machinist's helper, Chesapeake & Ohio, Peach Creek, W. Va.), vice-presidents. These officers were installed immediately and the following were appointed secretaries: Jacob Ziegler (machinist, Louisville & Nashville, Louisville) and Eugene Widman (yard clerk, Missouri Pacific, Dupo, Ill.).

Discussion Groups

Talks outlining the purposes of the conference and methods by which the work was to be carried on were given by G. K. Roper, general secretary of the Railroad Y. M. C. A., and by C. C. Robinson and C. B. Loomis, of the boys' work department of the Y. M. C. A. The delegates were then divided into groups of 15 or 20 each for purposes of discussing matters brought up by speakers and any other subjects of importance which the boys themselves might propose.

On Friday evening there was a banquet. President King presided and introduced a local delegate, William Harnack (assistant steward, P.R.R. station restaurant, Pittsburgh), who served as toastmaster, preliminary to which he made a short address welcoming the conference to Pittsburgh. The first speaker was John A. Dobson (clerk, Reading, Philadelphia), and his subject was, "What the Detroit Conference Meant to Me."

Addresses by Delegates

Before he went to this conference, Mr. Dobson averred, he was a "clock watcher" at his work and a pursuer of questionable pleasures when he was away from work. The conference at Detroit, he said, had given him an entirely new point of view. He had come to the realization that his work was important and that he was not doing right by himself, to say nothing of his employer, by not interesting himself in it. Since the conference, therefore, he had been a much more valuable employee and, moreover, he had discontinued the questionable practices by which he used to while away his leisure hours.

The next speaker was Strother Kiser (clerk, C. & O., Russell, Ky.), and his subject was, "What the Pittsburgh Conference Ought to Mean to Young Men in Transportation Service." He based his conclusions on what the conference ought to mean by referring to a conference held on the Chesapeake & Ohio some months ago (see Railway Age of April 11, page 937). To this meeting, he said, the young men went somewhat skeptical but largely with the idea of having a "good time." When they got there they were surprised to find high officers of the road ready and eager to talk to them and help them, advising them along vocational lines, regardless of whether the boys announced an intention of staying in railroad service or not. This point he emphasized as being of considerable importance, i. e., that to get the cooperation of the boys in a meeting like this the interest of railroad officers meant a great deal more when given, as in the case of his road, regardless of whether the railroad would benefit directly or not. An unselfish spirit on the part of the railroad would foster a similar spirit on the part of the boys. Mr. Kiser went on to say that the conference on the C. & O. had resulted in helping the boys to decide just what occupations they wanted to enter and the way to get into these positions.

Several boys, encouraged by the meeting, had taken up their studies in school again in non-working hours after having dropped them.

E. T. Whiter, vice-president, Central Region, of the Pennsylvania, and C. E. Lindquist, general secretary,

Brotherhood of Locomotive Engineers, spoke at the banquet. Their addresses are given in abstract below.

Character Essentials for Success in Railroading

By E. T. Whiter

Vice-President, Central Region, P. R. R.

Broadly speaking, personal characteristics and accomplishments leading to success in any line of business or in any of the classical professions can be put to good use in the rail transportation world. This is truer today than ever and the call upon railroad men to exhibit more than mechanical proficiency will become stronger as the years pass. We people of the transportation world are setting up broader, more sympathetic and more understanding relationships with people engaged in other lines of activity. They wish to know more about us and we wish to know more about them. We must live together and work together in harmony or we shall confound ourselves by going at cross-purposes. Hence, the force behind my observation that the rail transportation world can employ, and in fact needs, men who could register successes at most anything they might take up.

Dependability

My observation of men who may be called successful in railroad work leads me to say that everyone of them exhibited thorough reliability, thorough dependability. They could be counted upon, they were on the job. Of course, they had to be able to handle their tasks proficiently. But the beauty of it was that when most needed, they were always found at the right spot.

Another characteristic I have found among successful railroad men who were admittedly well trained and dependable was their breadth of vision. They seemed to be able to visualize the farthest effects of what they were doing and to be able to make their efforts bring out just the desired effects. There were no blind alleys ahead of them. They saw clearly and for great distances.

Getting Along With People

One of your earliest discoveries on this study of people will show you how much alike they are and yet how different they are. You will eagerly make use of all the sympathetic understanding they display toward you. You will do well to develop that vein of kindly sympathy for it is the real secret in getting other people to work with you for a common purpose.

Not all your co-workers will be sympathetic, some of them you may possibly dislike. At that stage you will find that you cannot pick the people with whom you are going to work, that you cannot re-make them to conform to your ideas but that you must work with them whether you like them or not and that the best of your probable success is your ability to take run-of-mine human talent and get things done.

Morale

Railroad performance more than any other service or commodity in the world gets down fundamentally to a question of morale. No matter how well equipped we may be with cars and locomotives, with tracks, terminals and other facilities for manufacturing transportation, unless the good will and co-operation of the men to operate these facilities is freely given we cannot render the service to the public that the public is entitled to expect. You will note, as I have noted, that successful railroad men conform strictly to discipline and support it as a principle. By their actions, successful railroad men show that the necessity for discipline is greater in the transportation world then in any other line of industry.

Successful railroad men love work and know its worth as a builder of character. I am sorry for any man who is going through life without working. He either doesn't know that he has to work hard in order to develop his character, or he doesn't care. In either case there is a human tragedy, the piteous story of what he might have become and of what he might have accomplished. Entirely apart from the material values which attach to work it gives a man something in character that he can secure no other place and in no other manner.

"Excess Baggage"

I wish to mention also some of the excess baggage that you can hardly afford to carry with you. Included in the possessions of which you may well be rid is the fallacious belief that you must be master of many subjects. You will find, unless you are a genius that best promise of success lies in mastering one subject so completely that you can rely upon your own judgement as regards that subject. As for other subjects, you shall doubt your own opinion to the extent that you will seek and take only the judgment of the best informed men.

There is another belief which can discolor and darken your whole life. That is the notion that it is possible for a group of men to carry out a conspiracy by which all the rest of the world can be enslaved industrially or otherwise. I do not doubt that little groups of selfish and powerful men have often had such dreams. But no group of brains has yet existed or remained active long enough to put any such scheme into operation.

Importance of Railroading

Our railroad world and the people it serves have suffered alike from wrong opinions about the nature and relative value of our task. The people who built our railroads volunteered to do a necessary work. To each of us and to all of us alike are assigned tasks worthy of the best that is in us and calling for the exercise of those inventive, adventurous pioneering traits the American people have displayed with such astounding success.

No moving picture of the silver screen was ever so grand and thrilling as ours of the railroad world. In perspective, the figures of the owners, the officers and the men whose shoulders are at the wheels all blend together with their mighty machines to form a mass spectacle of energy unsurpassed in human records.

Necessities for Success

By C. E. Lindquist

General Secretary, B. of L. E.

This nation is not great primarily because of its area of square miles nor its population in numbers but because of its transportation facilities.

The transportation system of a country is like the arteries of the human anatomy. In order for a nation to thrive, its transportation facilities must be prosperous.

I know that everybody here has the aspiration to become a president, general manager, or some other high officer on a railroad. Some of us may feel as though we are somewhat handicapped because of not having had much of a higher education. Now this should not discourage you one bit, but should act as a spur to greater endeavor and in such endeavor you cannot escape building up character and capacity that will react on every phase of your career.

Careful Thought

The object of all schools and colleges is not so much to teach people facts,—the contents of books, the items of information that other people have learned, as it is to teach them to think. About the only training that will do you any real good is the training in the art of thinking, because thinking rules the world. From a physical standpoint, the animal surpasses man. The elephant is stronger, the fox is quicker, but man has lifted himself above the animal because of his mental power.

There is just as much difference between the higher type of successful men and the man who is a complete failure than there is between some men and some animals and that difference is the difference in mental power.

"Investing a Life"

You have your life to invest—that is a matter you cannot get away from. It must be done. Then it resolves itself into this, having my life to invest, how shall I invest it? Your life may be made much of or it may be made little.

Do not let your lives drift as a stick in the water at the mercy of any breeze or eddy, but consider your life investment just as a business man considers the investment of a large sum of money. Before he invests a large sum of money he counsels with his friends who have had unlimited experiences. He stays away from the "get-rich-quick," "fly-by-night" and "wild-cat" schemes. He wants to know what the dividends are. How safe is the principal. And precisely so with your life. When you invest your life find out what the dividends are. How safe is the principal?

How to Acquire a "Pull"

Now I know that every one of us has one thought in mind and that is making good. We would like to make good. There is just one way you can make good and the only way. That is forget about making good and center your thought and mind on doing right and if you do right you cannot help but make good. I have been told that if you look long enough for anything you will always find it, and if you do not believe that go out and look for trouble and see how quickly you will find it. I wonder if many of you have worked in the shop or offices alongside of a "fellow who has a pull." May be there are some in here who have that pull. I want to tell you I worked for

one railroad company 33 years and I never saw a man yet that had pull there except the pull he had made himself. The pull comes to you when you demonstrate you have qualifications for greater responsibility. These qualifications may be many.

A man does not necessarily have these qualifications merely because he is efficient. He may be an efficient mechanic, an efficient clerk or an efficient bookkeeper—that adds to his qualifications—but there are characteristics that must go along with them. You must be honest; you must be truthful; you must be dependable. Take these four principles and add them together and apply them and tomorrow you will be accused of having a pull.

The Rights of Capital and Labor

Any thinking man will agree that capital has its rights as well as labor and that capital must make good its depreciation, wear and tear, before there is any profit, and precisely so with labor. The entire capital of labor is brain power and muscle, which day by day is being worn out, until it is eventually thrown on the scrap pile.

There is no fight between capital and labor—then why should there be between employer and employe? I am going to leave just a few parting remarks which I recall J. G. Walber made at your last conference. He said, "One of the most important essentials is realizing the necessity of being all-around men." By that he meant: Do not be one-sided, lop-sided. Every man is a triple being, physical, mental and spiritual. All these elements require cultivation, if a man is to develop. While we have mentioned the spiritual last, all of us who believe in the Holy Bible must realize that it comes first.

Be obedient, be truthful, be honest, and adhere to the teachings of your Y. M. C. A. and I believe you will have no need to fear that you will not succeed.

Character Building

Immediately following the opening of the second day of the conference—Saturday morning— the meeting broke up into the discussion groups. The first topic laid before the delegates was their relations with their girl frineds—a part of the character building side of the program, which is stressed in these meetings as being equal in importance with the vocational. No attempt was made to lecture the boys on this subject. A Y. M. C. A. leader attended each meeting, but the discussion was in charge of a chairman and a "scribe" elected by the boys themselves. The discussions were held with the idea of having the boys express their own opinions, unaided, trying to formulate a definite policy for their own guidance. Each group drew up a detailed report of its opinions on this subject, which was presented to the findings committee and copies of which will be preserved for the international younger men's conference to be held in Helsingfors, Finland, in 1926.

Vocational Guidance

After the discussion on this subject the conference reassembled to hear an address by C. C. Robinson, secretary for employed boys of the National Council of the Y. M. C. A. The theme of Mr. Robinson's talk was the importance of finding the right job and then studying that job, putting everything possible into it. He cited the case of Henry Ford and F. W. Woolworth as showing how young men whose success had been only nominal previously scored tremendously when once they found the right line of work. This conference proposed, he said, not only to give the boys hints of how to succeed in the jobs they were actually occupying, but also to help them find the proper jobs in case they did not feel they were now in the proper work. He emphasized the point, however, that a mere desire to enter a certain occupation was no evidence of ability in that line.

This address was by way of introduction to the vocational guidance work undertaken at the conference. Following Mr. Robinson's talk blanks were passed around to the delegates for them to fill in giving the kind of information which they needed. These blanks listed first practically all the important classes of railroad work, asking the boy to check that in which he was particularly interested. The blank then asked him to designate what position he would like to be holding ten years hence and what qualifications he felt he had for that work. He was then asked to sign his name, giving his position, railroad and location.

Vocational Counsel

All that afternoon, a group of the older men at the conference went over these blanks, sorting and classifying them, according to the occupations which the boys were interested in. Before dinner time they had been arranged in groups of from four to a dozen according to chosen occupations and assigned for advice to a railroad officer or some other competent person, a specialist in the kind of work which they had indicated as their chosen line. For example, those who aspired to rise in the mechanical department were assigned for advice to a superintendent of motive power or a master car builder, operating department aspirants to a superintendent, and so on. Experts in these lines, for the most part local railroad officers, acting as advisers, met the boys at dinner Saturday evening, where they sat with them at table for the purpose of getting better acquainted before the actual work of advice and consultation started. With each group of boys and their adviser was a Y.M.C.A. secretary to give assistance where he could.

Transportation Industry as a Life Work

On Saturday afternoon while the classifications by occupational preference were being made, the delegates were taken on a trip to the Jones & Laughlin Steel Company's mills at Woodlawn, Pa. Trolley cars to the Pittsburgh & Lake Erie station at Homestead were provided by the Pittsburgh Railways and a special train to Woodlawn was operated by the P. & L.E. under the direction of F. G. Minnick, assistant general manager.

At the dinner in the evening which preceded the breaking up into groups for advice and counsel, the principal speaker was Roy V. Wright, managing editor of the *Railway Age*. Mr. Wright's subject was, "The Transportation Industry as a Life Work." He stressed the importance of the railroads to the country and their need for broad-gaged men, willing to "invest their lives" in the service.

On Sunday morning the delegates met and again divided into groups to discuss the subject, "How to Make the Spirit and Work of this Conference Effective in Our Own Lives and Among the Fellows Back Home." Adjournment was taken from 11 until lunch time to allow the delegates to attend church services. Following luncheon the conference was called together in final session. Reports from the various committees were read. That of the credentials committee gave the nature and extent of the enrollment. The report of the resolutions committee was by way of thanks to various individuals and institutions whose co-operation had helped to make the conference a success. The report of the findings committee follows:

Findings

I. We commend the spirit of John A. Dobson in telling of the change in his life due to the Detroit conference and in his work with his fellows at home and, furthermore, we recommend that each delegate return home to courageously live up to the convictions he received at this conference.

II. We commend the growing spirit of those railroad officials who are aiding the younger men to achieve their vocational goals.

III. We especially commend those ideas in talks by Mr. E. T. Whiter and Mr. C. E. Lindquist in regard to co-operation and knowledge as guide posts in the broadminded development of all transportation relations to the fullest measure.

IV. We recommend as a solution to the existing boy-and-girl problem frankness between parents and children; frankness be-

tween young men and young women and the reading of good literature on the subject. We further recommend as a basis of action for ourselves the standard contained in "A Boy and His Girl Friends" by C. C. Robinson.

V. We recommend that each delegate go back home to work for a higher standard of apprentice schools on his road.

VI. We commend the conference on its vocational help and further recommend that each delegate return home to promote a "find yourself" campaign.

VII. We appreciate the message given to us by various speakers regarding the importance of the railroads to the country and the dignity of railroad employment. We recommend that the delegates go home with a determination to learn more and to tell others the facts about our industry.

VIII. We commend the idea of small discussion groups and recommend that this idea be used in the next conference and also that more time be allowed for these discussions.

IX. We commend the idea of visiting actual working plants but recommend that next year, being railroad men, we be taken through a railroad plant.

Closing Session

It was proposed that the conference send a delegate to the international younger men's conference in Helsingfors, Finland, next year. The conference acted favorably and chose Warren King, the president, as its delegate. Those present contributed a minimum of one dollar each toward the expenses, Dr. J. P. Munn having agreed to make good the difference.

The final feature was an address by A. N. Cotton, senior boys' work secretary, National Council, Y.M.C.A., which was by way of a summary of the activity of the conference with emphasis on its spiritual significance.

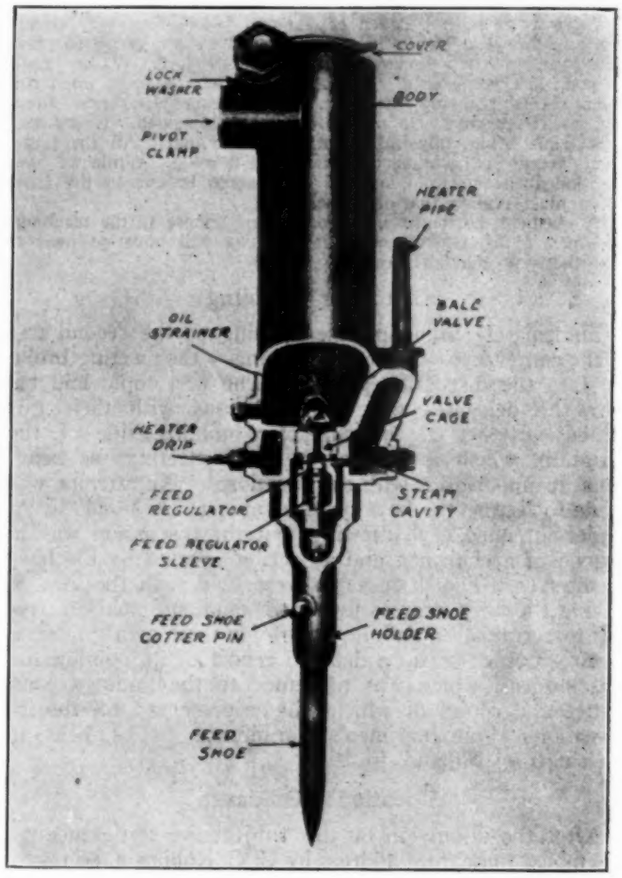
The executive committee in charge of the conference was headed by E. T. Whiter, vice-president, Central Region, P.R.R., as chairman. Other members of the committee were: R. L. Williams, metropolitan boys' work secretary of the Y.M.C.A. at Pittsburgh; J. B. Yohe, vice-president and general manager, P. & L. E.; E. A. Peck, general superintendent, B. & O.; F. I. Snyder, general manager, B. & L. E.; H. W. Nethken, vice-president and general manager, P. & W. V.; T. Fitzgerald, vice-president, Pittsburgh Railways. Chairmen of other committees were: Entertainment, J. S. Fleck, chief passenger transportation clerk, P. R. R.; reception, F. W. Conner, passenger traffic manager, P. R. R.; vocational counselling, L. H. Turner, special representative to vice-president, P. & L. E.; educational trip, F. G. Minnick, assistant general manager, P. & L. E.; meeting place, D. M. Howell, executive secretary, East Liberty Y.M.C.A.; publicity, L. B. Sisson, editor, P. R. R., Central Region, News.

Swanson Automatic Flange Lubricator

THE flange lubricator marketed by the United Manufacturing & Sales Corporation, Denver, Col., is automatic as to adjusting itself to the movement of the wheels and feeds oil only when the locomotive is in motion. The purpose of this device is to reduce both flange and rail wear to a minimum with the least possible amount of oil. As can be seen from the accompanying illustration, it contains no regulating valve or complicated parts to get out of order readily. It is heated by the air compressor exhaust steam to insure proper flow of oil in cold weather. Any oil from clean, light crude to asphaltum, can be used.

There is nothing complicated in its operation. When the locomotive or car moves, the motion of wheels causes the ball valve in the lubricator to unseat, allowing oil to flow to the auxiliary reservoir. The regulator then controls the amount of oil fed to the flange. When the locomotive stops, the ball valve automatically returns to its seat, shutting off the flow of oil. It requires no regulation by the engineman as that is attended to when the kind or grade of oil to be used is decided on and the proper sized regulator applied in the lubricator. It adjusts itself to all local conditions; the movement of wheels, regardless of how much, does not displace the feed shoe and does not effect the operation of the lubricator.

It is provided with a good strainer to prevent the possibility of dirt in the oil getting to the regulator valve. When cleaning is necessary, the feed shoe holder and valve cage is removed after which the device is blown out with steam. The feed regulator should be free in the sleeve. The lubricator should be filled at terminals,

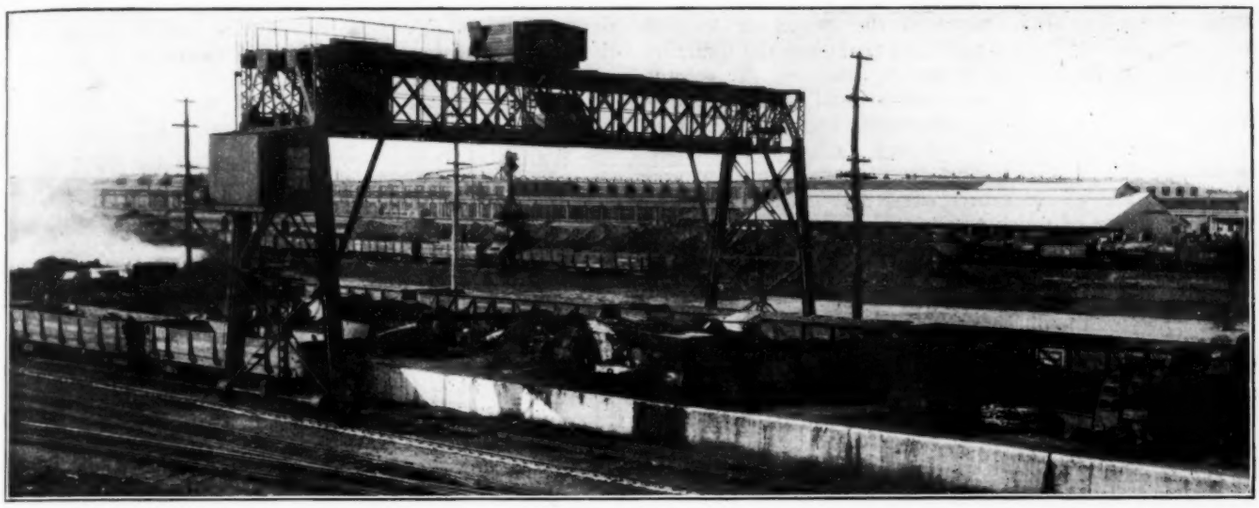


Construction and Parts of the Swanson Automatic Flange Lubricator

whether empty or not, as more damage may be done to a flange in 100 miles without oil than in 1,000 miles with oil.

The method of applying the flange lubricator is simple. The suspension bracket is bolted to the locomotive frame or any other suitable place so that the arm will be properly located. The lubricator body should hang as nearly perpendicular as possible. The feed shoe should be located directly in the throat of the flange.

The air compressor exhaust pipes should be tapped for the heater at a point where dry steam will be obtained. Heater pipes must be arranged so as to leave no water pockets to cause freezing. A ¼-in. pipe should be brought down from the air compressor exhaust underneath the boiler and divided centrally between the lubricants. The steam hose which connects the pipe with the lubricator heater should be of sufficient length to insure flexibility.

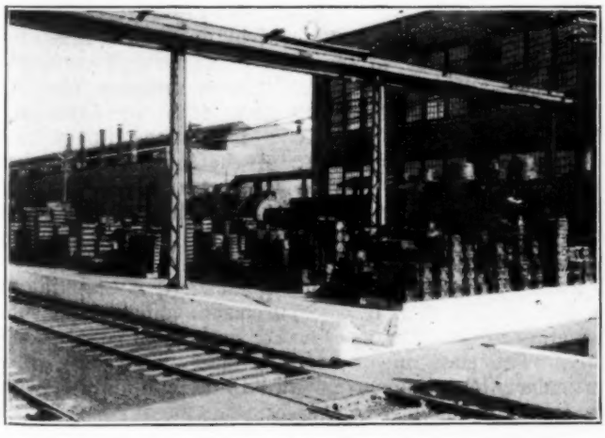


The Scrap Dock of the Boston & Maine

Boston & Maine Watches Unfilled Orders

Striking reductions in delayed deliveries of material gained by systematic efforts of purchasing department

THE Boston & Maine has recently installed an equipment of tractor trucks and power lifting devices at its main store house at Billerica, Mass., near Boson, to supplement other labor saving equipment there and has practically completed overhauling its platform for



A Partial View of the Casting Storage at Billerica

locomotive and car castings. With this work accomplished along with the marked advances made in eliminating obsolete and surplus stock, the time is rapidly approaching when the Boston & Maine expects to have one of the "show" places on the eastern railroads in efficient handling of materials and supplies.

The results which are attending this road's efforts in storehouse and stock revamping, however, are not more imposing than the success it has had in quickening the deliveries of material ordered from supply companies. The annual expenditures of the Boston & Maine for all purchases of materials and supplies has averaged about $20,000,000 during the last three years. This expenditure has involved the issuance of 27,000 or more orders per year, the number in 1924 being 27,833, which is less than the number being issued this year. In the majority of instances these orders call for immediate deliveries, as a result of which they become overdue as soon as issued and thereby fall into the category of unfilled orders.

During 1923, there was an average of 2,191 unfilled orders on hand at the end of each month for materials other than fuel, lumber and stationery. Of these, an average of 445 were orders overdue from 30 to 60 days, an average of 238 were orders overdue from 60 to 90 days, and an average of 289 were orders overdue more than 90 days. Thus far this year, on the other hand, out of an average of 1,618 unfilled orders at the close of each month there have been only 269 orders from 30 to 60 days old only 75 from 60 to 90 days old and only 22 orders more than 90 days old, notwithstanding that the figures for 1925 include lumber and stationery in addition to the materials covered by the 1923 figures. When this year's orders are adjusted on the basis of the number of unfilled orders reported in 1923, but without eliminating the extra materials from the 1925 figures, it is observed that proportionately there were only 100 orders per month overdue from 60 to 90 days this year as compared with 238 in 1923, and only 30 per month of more than 90 days standing this year as compared with 289 in 1923. Even when these figures are discounted liberally for causes wholly unrelated to the Boston & Maine, their significance and the significance of the comparisons revealed upon examining the different classes of orders are unmistakable.

The success of the Boston & Maine in improving the

status of its unfilled orders is the result of a plan inaugurated several years ago. At that time the difficulty of getting supplies promptly was extreme and the volume of orders long overdue was a continual source of embarrassment. Under the circumstaces this road resorted to the common practice of ordering sooner and of keeping more stock in reserve, but even where finances would allow this, the whole fabric of deliveries was too uncertain to prove of much assistance in view of the multitude of items of stock involved.

The plan which was adopted to ameliorate this condition is one of systematically checking every unfilled order on the books of the purchasing department until the order is filled. For this purpose and others, the clerical organization of the purchasing department is divided into units so that certain desks are assigned full responsibility for prescribed classes of material which is so divided among the desks as to distribute the work equally. There are six of these divisions all told, one desk being assigned the handling of all orders for hardware, rubber products, tinware and station supplies, etc.; a second desk all orders for castings, small forgings, paints, air brake material, etc.; and a third desk all orders for bar steel, axles, wheels, pipe and fittings, oil and waste; while a fourth desk handles the orders for electrical material, track and building material and car trimmings, a fifth desk the stationery and printing and the sixth desk lumber and ties. In accordance with this plan, when requisitions reach the purchasing office they are sorted into their several classifications and parcelled out among the several desks, each desk receiving only those requisitions within its jurisdiction—a procedure which is simple since by prearrangement separate requisitions are made for separate classes of material. Upon the receipt of these requisitions at each desk, it then becomes the function of the respective employee in charge to follow the requisitions until, under the direction of the purchasing officer, an order is placed for the material. Thus it devolves upon each desk, for instance, personally to see that the material is properly described and that the requisition is properly filled in other respects. It is his function to determine from card indexes covering all the items within the jurisdiction of that desk if the purchase of the particular supplies in question are covered by a contract and if so to have the order made out accordingly. On the other hand, if no contract exists it is his function to have the inquiries for prices prepared and upon the receipt of the quotations, to make any adjustments for freight charges preparatory to their examination by the purchasing officer, and subsequently to issue the order on the designated supply company. This assignment of duty places each desk in a particularly advantageous position to become familiar with the status of supply companies and the history of all orders.

Thereafter, as each order is made, by whatever process, a copy is placed in a binder on the desk where it was prepared and is filed there according to the alphabetical arrangement of the company. The order is kept in the file until the invoice is received. At regular intervals, however, and independently of any pressure from using departments, this file of orders on hand is examined and any orders advising attention are noted, whereupon letters are written to supply companies or such other action taken as is warranted in view of the age of the order, or the status of the company or the need for the material.

This procedure is supplemented at the beginning of

SUMMARY OF UNFILLED ORDERS BY MONTHS FOR 1923 AND 1925*

	Total on hand		Under 30 days		30 to 60 days		60 to 90 days		Over 90 days	
End of	1923	1925†	1923	1925†	1923	1925†	1923	1925†	1923	1925†
Jan.....	....	1,903	....	1,417	...	381	...	85	...	20
Feb.....	2,344	1,564	1,412	1,051	497	341	215	144	220	28
March...	2,568	1,752	1,713	1,430	429	224	239	75	187	23
April....	2,572	1,551	1,305	1,182	814	301	220	48	233	20
May.....	2,665	1,503	1,326	1,091	599	281	495	106	245	25
June.....	2,467	1,522	1,064	1,258	564	180	361	63	478	21
July.....	2,553	1,636	1,259	1,335	481	248	324	35	489	18
Aug.....	2,051	1,572	927	1,240	437	250	240	61	447	21
Sept....	1,906	1,507	1,039	1,155	297	264	216	70	354	18
Oct.....	1,702	1,676	1,068	1,370	285	221	109	62	240	23
Nov.....	1,624	....	1,118	....	245	...	93	...	168	...
Dec.....	1,651	....	1,173	....	250	...	107	...	121	...
Average.	2,191	1,618	1,219	1,252	445	269	238	75	289	22
Adjusted‡	2,191	2,191	1,219	1,700	445	360	238	100	289	30

*Figures apply only to orders overdue.
†Figures for 1925 include orders for lumber and stationery.
‡Averages for 1925 are adjusted on basis of volume of unfilled orders in 1923.

The Billerica Storehouse Is Now Well Provided with Haulage Equipment

PARTIAL TIME SCHEDULE FOR ORDERING MATERIAL

Material	Days	Material	Days
Track and roadway tools.	60	Brake shoes.....	45
Motor and push cars and parts	45	Cylinder and steam chest castings, (new item)....	45
Interlocking and signal material std.....	60	Locomotive cylinders.....	60 to 90
Brick, cement, cast iron and tile pipe.....	30	Car roofs	30 to 45
Bridge ties.....	120	Castings, composition brass	45
Fir and yellow pine.....	120	Air brake equipment....	60
Spruce and white pine..	60	Passenger car trimmings, etc.	45
Switch ties.....	150	Electrical material for steam locomotives.....	45
Fuel and water station material	45	Material for rail motor cars, automobiles and power trucks.....	45
Chemicals for timber treatment	30	Gasoline	30
Bolts and nuts.....	65	Fire brick, fire clay, etc.	45
Flues and tubes, safe ends and arch tubes.....	45	Axles	60
Steel tubing, copper sheets, etc.	30	Wheels, steel.....	45
Iron, bar and sheet.....	60	Tires, driving and trailing	45
Iron, staybolt and engine-bolt	30	Oak	120
Structural steel.....	45	Locomotive, train and station supplies.....	30
Steel, boiler, firebox and tank	45	Lubricating oils, all kinds	30
Crank pins, piston heads and rod forgings.....	70	Pipe, iron.....	45
Car forgings, coupler yokes, etc.....	60	Malleable pipe fittings....	60
Brake beams.....	45	Elec. material peculiar to to buildings and grounds	30
Castings, grey iron.....	30 to 60	Hardware, all kinds, including nails.....	45
Castings, malleable iron.	45	Rubber and leather goods, packing and belting..	30
Castings, steel.....	60 to 90	Drugs and chemicals painter's supplies, etc...	30

each month by the preparation of a report by each desk on the status of orders carried. This report comprises a statement of the total number of unfilled orders on hand at the beginning of the preceding month, the number of these orders under 30 days old, the number from 30 to 60 days old, the number from 60 to 90 days old and the number over 90 days old, together with the same information concerning the orders at the beginning of the month in question, also the record of the orders filled during the month and the number issued during the month and the increase or decrease in the number of orders standing. These reports from the several desks (which take less than a half hour to prepare) are tabulated on a single typewritten sheet and a summary attached for the information of the purchasing officer. It is not alone valuable for its record but is a decided factor in expediting the disposal of unfilled orders by providing an incentive for each desk to keep up a commendable record. It is also helpful to each desk as a basis upon which to advise the store department from time to time concerning the length of time which should be allowed in order to get each kind of material. In the schedule now in use a part of which is reproduced herewith, there are but few cases where 60 or more days' time is called for when ordering. The Boston & Maine has not eliminated the problem of material procurement by the plan under which its purchasing organization is now working but the procedure thus far has been fruitful of highly satisfactory results. It is a marked advance over the former practice.

N. I. T. League Meets in Chicago

Restraints upon railroads and consolidation fostered by governmental influence opposed

RAILROAD consolidations, the jurisdiction of the Interstate Commerce Commission over water rates and rate construction and tariffs, were the main subjects considered at the annual meeting of the National Industrial Traffic League at the Hotel Sherman, Chicago, on November 18 and 19. The league expressed itself as opposed to the imposition of artificial restraint upon the roads by governmental interference and to consolidations fostered by governmental influence, declaring that the railroads should be as free from interference as other institutions and should be subject only to such regulation of their service as is necessary to preserve the free flow of commerce at just and reasonable rates. Opinion regarding the jurisdiction of the Interstate Commerce Commission over water rates was divided and the league did not go on record as favoring it. In discussing rate construction and tariffs, consideration was given a plan for cooperative rate making under which shippers and railroad representatives would get together and iron out differences in opinion. The league discussed the basic system of rate making, giving attention to carload, l.c.l., class, commodity and export and import rates. All officers were reelected for the following year.

The league went on record as favoring the giving of courses in the fundamentals of transportation by universities, correspondence schools and other schools, and a committee was appointed to confer with the universities with a view to working out more practical traffic courses.

"God save the country if Congress makes the rates", was the warning given by James S. Parker, chairman of the committee on interstate and foreign commerce of the House of Representatives, who spoke briefly at the meeting in opposition to rate making by Congress, instead of the Interstate Commerce Commission. Mr. Parker, who is a member of President Coolidge's air investigating board, spoke upon the nation's air force, at the annual dinner on November 19. He also referred briefly to freight carrying by airplane, saying that the time was not far off when consideration would be given this method of transportation.

C. H. Markham Speaks at Annual Dinner

C. H. Markham, president of the Illinois Central, spoke on "The path of Railway Progress" at the annual dinner. He advocated changes in the Esch-Cummins Act to provide for voluntary consolidations rather than those imposed by federal authorities. In outlining the progress made by the railroads he said they are giving better service now than they ever did and for less money than at any time in recent years. He showed that the net income after expenses and taxes on Class I roads, figured on the basis of the tentative valuation placed upon their properties by the Interstate Commerce Commission for rate-making purposes, increased from 3.33 per cent in 1921 to 5 per cent in 1924, and to an annual rate of 5.56 per cent in the first nine months of 1925. This has been accomplished with a decrease in rate levels since 1921.

In discussing the misunderstanding of Section 15a of the Transportation Act, he said that since the question as to whether it constitutes a guaranty to the railroads has been settled, the next question we may expect to hear a good deal about in the future is, "What interpretation shall be placed upon the rate-making provision when the return specified is reached?"

"The fact that thus far the railroads as a whole have failed to realize the return named by the commission has led many persons to regard 5.75 per cent as the maximum and to expect that at any time it is reached or exceeded rates will come down at once. The law encourages no such interpretation. There is more reason to regard 5.75 per cent as the minimum and to argue that rates should be raised at any time the return falls below it. The intent of the law is to provide for the transportation needs of the country by making it possible for the railroads at all times to finance needed improvements and additions to their facilities. To do that the railroads must realize a net after expenses and taxes that will put them more nearly on a parity with other forms of investment with which they must compete for their share of the capital that is made available for industrial expansion year by year.. Other lines of business may suffer losses in times of depression but they are able to recoup these losses sufficiently in times of prosperity to show average earnings over a period of years that will attract the investment of new capital."

The future of consolidations, he said, lies in creating conditions under which the railroads will be prompted to get together voluntarily along such lines as are economically justifiable, and which will improve their service to the public by making possible economies in the opera-

tion of benefit to themselves and to the public. "Consolidations," he said, "will not produce railway systems of equal earning power, nor will they effect the large economies in the cost of producing railway service that some of its advocates contend it will."

Report of Legislative Committee

The legislative committee recommended that there should be no policy of law adopted for the purpose of exerting legal compulsion upon carriers to require them to merge their properties. It was the belief that Congress should immediately pass a law revoking the requirement for a tentative plan of consolidation and leave the provisions as to permissive consolidation with affirmative provision for the preservation of carrier competition. The committee recommended that the league should continue to oppose any legislation which undertakes to impose present or future compulsion upon railroad corporations, to consolidate their properties, believing that constructive studies should be made by some such authority as the Interstate Commerce Commission of the problems of the so-called "weak lines."

In considering the proposal to enact legislation by which one railroad corporation may condemn the securities issued by another railroad corporation, the committee felt that where the commission has made an investigation of a proposed consolidation and has found that such consolidation should be carried out in the public interest and that it would not substantially lessen carrier competition, the commission should have the further power and jurisdiction thereafter to fix a price upon securities which are being held by a small minority when such holdings tend to interfere with the consummation of the plan of consolidation. The committee also recommended the enactment of federal laws for the incorporation of railroad companies, providing that the jurisdiction of the state courts and state regulatory bodies be not substantially impaired in the scheme for such incorporation.

The committee submitted a resolution urging the reduction in the rate of interest charged roads for loans from the revolving fund and also abolishing the capital stock tax, or if this were found impossible, amending the law so as to avoid the duplication of such taxes in the case of subsidiary or affiliated railroad corporations.

The committee reported that in its investigation of the jurisdiction of the Interstate Commerce Commission over water rates, there was a very substantial division of sentiment upon the subject and it was pointed out by some members of the committee that it would not be sufficient for the Interstate Commerce Commission to undertake to fix rates for American lines unless some method be devised to meet the competition of the foreign steamers on rates quoted from other countries to American ports. The interests located on the seaboard do not favor conferring this jurisdiction upon the Interstate Commerce Commission, while interior interests favor it. Some members of the committee believed that the trans-continental rail carriers should be given ample fourth-section relief to enable them to meet water competition and did not favor any legislation which might deprive coastwise American lines of the right to meet the competition of foreign water lines. The majority of the committee felt, in view of the divergent views in the interior and on the coast, and also in view of the necessity for meeting foreign steamer competition, that the league should not go on record as favoring such proposed legislation.

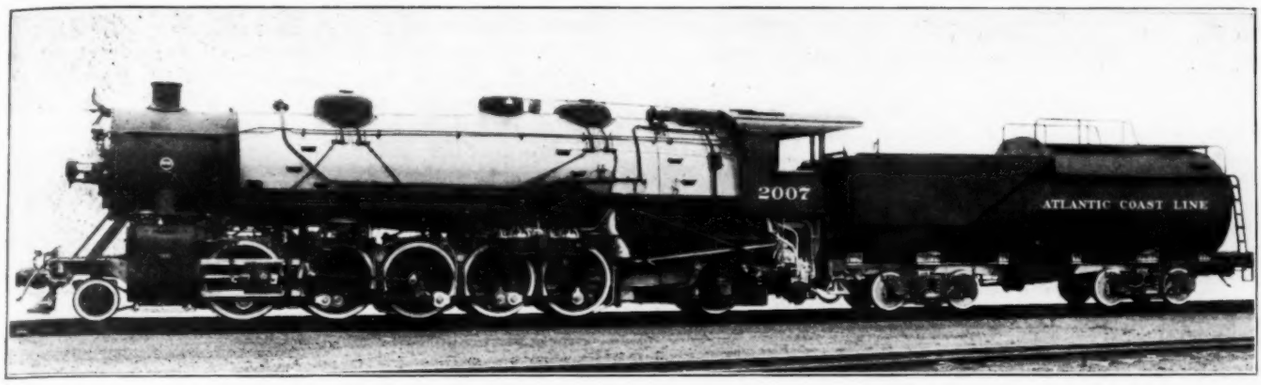
In the general discussion which followed the report, objection was raised to the Interstate Commerce Commission regulating port-to-port rates which would naturally follow if the commission is given jurisdiction over water rates. The interests at Chicago discussed the advantages the middle west would gain through placing the question of water rates under the jurisdiction of the Interstate Commerce Commission, but were willing to let its case rest on the settlement of fourth-section relief. The committee recommended that the league discourage rather than encourage congressional investigations of telephone and telegraph companies and encourage the handling of all such matters by the regulatory bodies created by the legislative branch of the government to deal with such matters.

In discussing the basic system of rate making, the committee said that it felt that individual rates based solely on cost of service would be both impracticable and unjust. The actual difference in the cost of moving a carload of silk and a carload of coal is relatively insignificant, compared with the differences in the value of the two carloads. Under a strict cost basis, the rate on coal would be prohibitive, whereas the silk would not contribute its fair share to the carriers' revenues. Practically all other factors entering into the making of a rate may be roughly classified under the general headings of cost of service and value of service. Many of the factors falling under either head may with propriety be classified under the other also. It is, therefore, not surprising that the present freight rate structure is said to be unscientific, and although commerce has expanded and the nation has thrived, there is room for improvement. From its study of rate development, the committee concluded that there is no single factor that should be controlling in the fixing of a rate. No rate should be established without due regard both to the cost of service and to the value of the service, even though it is not possible to make every rate reflect each of these elements exactly. The committee did not believe that the theory that the correct method by which to construct a mileage scale is to segregate the terminal cost and then make each mile of road haul service pay an equal rate had been sufficiently developed to enable the committee to pass intelligent judgment upon it.

In fixing inter-territorial class rates the committee recommended the grouping system in preference to the use of mileage scales. It expressed the opinion that the rates on the several classes should be systematically related to each other. It commended the progress being made toward the accomplishment of this uniform relationship as being a step forward toward greater uniformity in the whole class rate structure.

The committee felt that despite the restrictive provisions of regulatory law, commodity rates must and should continue to be made. So far as it can be done within the law, they should be so fixed as to permit reasonably free competition between shippers in different territories and different sections of the same territory. It felt that the main objective should be to preserve so far as possible the initiative of the carriers to the end that the tendency of governmental rate making will not too quickly put our commodity rate structure in a straight jacket.

The report on export and import rates demanded that such rates should contribute something over and above the additional operating expense of performing a particular service. It was felt that export rates on American products, particularly of the soil might very properly be maintained on a lower level than domestic rates as an aid to American producers in reaching world markets. In the case of import rates, the well-understood principle of what the traffic will bear should be closely adhered to, and figures as accurate as it is possible to secure should be procured as to production costs, total transportation costs to American shores, selling prices and other data, in order to determine the actual necessity for lower than domestic rates.



Sante Fe type locomotive for the A. C. L. which Weighs 303,060 lb. on Drivers and H as 88.2 sq. ft. of Grate Area

Santa Fe Type Locomotives for Atlantic Coast Line

Develop tractive force of 75,700 lb., with 30-in. by 32-in. cylinders, 63-in. diameter drivers and 195 lb. steam pressure

THE Atlantic Coast Line has recently received from the Baldwin Locomotive Works, Philadelphia, Pa., 15 locomotives of the Santa Fe type, which exceed in weight and hauling capacity any locomotives previously built for this road. The new locomotives, designated Class Q-1, are operating in the Montgomery, Ala., district on grades of 1.65 per cent and curves of 12 deg. Their dimensions, as compared with those of the Mikado type locomotives formerly used in this district, are given in the following table:

Type	2-8-2	2-10-2
Cylinders, diameter and stroke, in.	27 by 30	30 by 32
Drivers, diam., in.	63	63
Steam pressure, lb.	200	195
Grate area, sq. ft.	73.5	88.2
Water heating surface, sq. ft.	3,253	4,975
Superheating surface, sq. ft.	718	1,230
Weight on drivers, lb.	232,430	303,060
Weight, total engine, lb.	295,030	391,980
Tractive force, lb.	59,000	75,700

This represents, for the new locomotives, an increase in tractive force of 28 per cent, with a materially greater increase in boiler heating surface.

The general design of these locomotives is based on that of the standard heavy U. S. R. A. locomotives of this type, with details modified to suit the special conditions on the Atlantic Coast Line.

The boiler is designed for a pressure of 210 lb., but in service the safety valves are set at 195 lb. It is equipped with a Type A superheater. The diameter of the largest ring is 100 in. In accordance with the Atlantic Coast Line standards, all seams in the firebox and combustion chamber are welded, and the tubes are electrically welded into the back tube sheet. The arch is supported on five 3-in. tubes. Duplex stokers are installed, these being the first locomotives used on this road to be stoker fired.

Flanged tires are used on all the driving wheels, and lateral motion boxes are used on the first driving axle. The rear truck is of the Delta type, and the Commonwealth cast steel frame cradle is applied.

The steam distribution is controlled by 14-in. piston valves which are operated by Walschaert gear and set with a maximum travel of 7 in. and a lead of 3/16 in. The steam lap is 1⅛ in. and the exhaust lap, zero. The crossheads are of vanadium steel, with gun iron shoes. The back ends of the main rods and the middle connections of the side rods have floating bushings. The fixed bushings in the side rods are of steel, working against bronze wearing plates in the crank pin hubs.

The tenders of these locomotives are the largest thus far built for the Atlantic Coast Line, as they have capacity for 12,000 gal. of water and 16 tons of coal. These are also the first Vanderbilt type tenders to be used on this road. The frames are in one piece, of cast steel.

Further particulars of these locomotives are given in the table of dimensions and proportions.

Railroad	Atlantic Coast Line
Type of locomotive	2-10-2
Service	Freight
Cylinders, diameter and stroke	30 in. by 32 in.
Valve gear, type	Walschaert
Valves, piston type, size	14 in.
Maximum travel	7 in.
Outside lap	1⅛ in.
Exhaust clearance	Zero
Lead in full gear	3/16 in.
Weights in working order:	
On drivers	303,060 lb.
On front truck	27,120 lb.
On trailing truck	61,800 lb.
Total engine	391,980 lb.
Tender	221,020 lb.
Wheel bases:	
Driving	22 ft. 10 in.
Rigid	22 ft. 10 in.
Total engine	42 ft 9 in.
Total engine and tender	83 ft. ½ in.
Wheels, diameter outside tires:	
Driving	63 in.
Front truck	31⅜ in.
Trailing truck	43 in.
Journals, diameter and length:	
Driving, main	12½ in. by 13 in.
Driving, others	10 in. by 13 in.
Front truck	6½ in. by 12 in.
Trailing truck	9 in. by 14 in.
Boiler:	
Type	Conical
Steam pressure	195 lb.
Fuel, kind	Bituminous
Diameter, first ring, inside	100 in.
Firebox, length and width	132⅛ in. by 96¼ in.
Arch tubes, number and diameter	5—3 in.

Tubes, number and diameter	50—5½ in.
Flues, number and diameter	256—2¼ in.
Length over tube sheets	20 ft. 6 in.
Grate area	88.2 sq. ft.
Heating surfaces:	
Firebox and comb. chamber	387 sq. ft.
Arch tubes	39 sq. ft.
Tubes and flues	4,549 sq. ft.
Total evaporative	4,975 sq. ft.
Superheating	1,230 sq. ft.
Comb. evaporative and superheating	6,205 sq. ft.
Tender:	
Style	Vanderbilt
Water capacity	12,000 gal.
Fuel capacity	16 ton
General data estimated:	
Rated tractive force, 85 per cent	75,700 lb.
Cylinder horsepower (Cole)	3,163
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent	76.7
Weight on drivers ÷ tractive force	3.72
Total weight engine ÷ cylinder hp.	123.8
Total weight engine ÷ comb. heat. surface	63.0
Boiler proportions:	
Comb. heat. surface ÷ cylinder hp.	1.96
Tractive force ÷ comb. heat. surface	12.19
Tractive force × dia. drivers ÷ comb. heat. surface	768.5
Cylinder hp. ÷ grate area	35.49
Firebox heat. surface ÷ grate area	3.02
Firebox heat. surface, per cent of evap. heat. surface	5.36
Superheat. surface, per cent of evap. heat. surface	24.7

Boston & Maine Allowed to Abandon 58 Miles of Line

THE Boston & Maine has been authorized by the Interstate Commerce Commission to abandon various light traffic branches aggregating 57.80 miles of line, including 25.98 miles in Massachusetts and 31.82 miles in New Hampshire. The railroad had asked permission to abandon a total of 155.46 miles, including 93.74 miles in New Hampshire and 61.72 miles in Massachusetts but in connection with the majority of the branches involved the Commission decided that the railroad had either not made a good case or that proposed motor truck and bus service to be offered by the Boston & Maine Transportation Company was impracticable on account of the road and climatic conditions or would not supply sufficiently adequate service.

The findings were given in two decisions; one relating to the branches in New Hampshire and the other to the branches in Massachusetts.

The abandonments permitted are as follows:

MASSACHUSETTS:	
South Reading Branch, Wakefield Center to Peabody	8 miles
Lawrence Branch, Danvers to North Andover	15 miles
Lowell & Lawrence and Salem & Lowell Branches—	
Pike's Siding in Lawrence to Tewksbury Jct.	5.2 miles
Wilmington to Tewksbury Jct.	3.2 miles
Salem Jct. to Lawrence Jct.	.42 mile
NEW HAMPSHIRE:	
Manchester-Milford Branch, Grasmere Jct. to East Milford	18.54 miles
Bethlehem Branch, Bethlehem Jct. to Bethlehem	3.26 miles
Belmont Branch, Belmont Jct. to Belmont	4.18 miles

Permission to abandon the following branches was refused.

MASSACHUSETTS:	
Newburyport Branch, Wakefield Ctr. to Newburyport	29.90 miles
NEW HAMPSHIRE:	
North Weare Branch, Manchester, N. H., to Henniker Jct.	22.77 miles
New Boston Branch (a leased line), Parker Station (on North Weare Branch) to New Boston	5 miles
Keene Branch, Greenfield to Keene	29.35 miles
Peterborough Railroad, Wilton to Greenfield	10.64 miles

It was developed that most of these branches were built for competitive reasons, which were eliminated by the acquisition of all the lines into one system. The Boston & Maine in each case sought to show that the branch was operating at a loss but objection was offered by the representatives of the communities that incorrect methods were used by the railroad in pro-rating revenues and in charging maintenance expenses. It was shown that the traffic was light and was decreasing. The railroad proposed to establish, through its subsidiary, the Boston & Maine Transportation Company, a motor truck or bus service to take the place of most of the train service proposed to be abandoned but the contention was offered that in several instances improved roads were not available and that the conditions in winter were such that highway service could not be maintained. In the case of the Massachusetts abandonments, other railroad service is available or the communities are on or near improved highways. The Boston & Maine agreed while the case was in process to continue its Newburyport branch but with reduced service.

The commission in the New Hampshire decision presented the following views on the problem of railway abandonments in general and on the Boston & Maine's conditions in particular:

The applicant represents that all of these branch lines were originally built by other railroad companies for competitive or other reasons which no longer justify their existence; and that motor transportation, while acting adversely upon their traffic, at the same time provides a substitute means of transportation. The aggregate loss claimed of at least $225,000 per year due to operation of this mileage is represented to be a serious handicap upon the applicant's effort to earn a fair return and to recover good credit. The company is making a study of all its branch lines, with a view to discontinuing those which may be shown to be unprofitable.

Traffic densities on the applicant's lines in 1922 varied widely. The system average was 1,191,524 ton-miles per mile of road; for the eastern rate group, excluding New England, it was 3,351,927 ton-miles. For the applicant's three principal main lines, comprising 22.3 per cent of the system mileage, it was 3,324,686, but for its other lines it was much less. The average density for all branches, comprising 41.6 per cent of the system mileage, was 80,588. Only 3 per cent of the total ton-miles was made upon nearly 42 per cent of the system mileage.

It is contended by the applicant that the substitute bus and truck service proposed through the Boston & Maine Transportation Company will minimize local inconvenience resulting from discontinuance of steam operation, and that the broader interests of the Boston & Maine and the whole section which it serves should be the controlling element in considering these cases.

Competition with Highway Transport

Applications similar to these have come to us from every section of the United States. A number have come from New England, and the Boston & Maine has applied for authority to abandon lines in several of the states in which it operates. Applications for abandonment of steam railway operation appear to be only one of the many indications of disturbance resulting from the advent of the automobile and other new industrial forces. The steam railroad is laboring under conditions which resemble in certain respects those encountered by the stage coach when the steam railroad came into the field.

It will be admitted that people are entitled to the best and cheapest transportation they can get, and that they themselves must decide what is best and what is cheapest, all things considered. If people prefer to tax themselves to build great highways and to use commercial trucks and passenger vehicles in preference to the steam railroad, they have a right to their decision, but they must also assume the responsibilities, with the attendant consequences, of that decision.

The people of New England understand the importance to them of the Boston & Maine. This railroad and the people it serves are peculiarly interdependent, and in these abandonment cases there must be kept constantly in view the necessity for the preservation of as much as possible of the present mileage in the service of the greatest number of the people. The evidence seems to be conclusive that not a few of the lines which it is now proposed to abandon should never have been built. Under present conditions they would not be built. At the time of their projection as independent enterprises it seems to have been understood that some of them were built for purely competitive or strategic reasons.

But irrespective of the origin of an existing line, people gather about it and create for themselves an interest in and a dependence upon it. Under these circumstances abandonment brings about the kind of hardships with which it is so difficult to deal. The sufferers in such cases have no redress against those guilty of the original error, nor were they responsible for that error. In some of the instant cases the extent of hardship which would probably follow abandonment would be very great, while in other cases it would be negligible. Differences of opinion exist with reference

to the wisdom of certain features of the Boston & Maine management for decades past, but discussion of these matters is unnecessary in this connection. The important thing is the vitality of the present Boston & Maine system. Not only New Hampshire but all New England needs that system. The serious and difficult problem is how to sustain both the railroad system and New England territory as a whole without undue hardship on particular local territories. Benefits to the system of particular abandonments must be weighed against the inconveniences and losses which those abandonments will inflict upon the communities immediately affected. Benefits to particular communities of continued operation must be weighed against the burdens and retarding effect of such operation upon the development of the Boston & Maine system as a whole. A general verdict covering all of New England, or even a single state, is impossible. Decisions can only be made properly, wisely, and justly on the basis of the facts in each case.

For the purposes of these applications we look upon the Boston & Maine merely as a physical property, as it is now being operated in the interest of the people who live in the territory it serves. Nor can we look upon the Boston & Maine solely as it now exists. We must have some regard for what it should be in the future in order that it may serve the New England of the future. We must assume that New England will not only retain the eminence which it has achieved in the past but that its future will surpass this. The terminals at Boston alone require the expenditure of several millions of dollars in order to serve to the best advantage the commerce of New England which exists today and which will probably exist tomorrow. This aspect of the situation must not be overlooked. It is evident that the road must not be deprived of any legitimate and proper means of improving its present financial condition, to the end that it may efficiently serve the public and protect the interest of those who have invested in its securities. It is to the advantage of all the people that its credit should be improved.

In discussing the North Weare Branch abandonment the Commission also said: "The recent trend of the applicant's total system earnings indicates that the necessity for discontinuance of unprofitable branch lines is not so urgent as was at first alleged by the applicant."

Yale University Survey of Transportation

A STUDY of conditions and sentiment relative to the employment of college men in the railroad service and of other conditions related to railway efficiency, as affected by the personnel, made by a committee appointed by Yale University has been completed during the past 12 months and a preliminary summary of conclusions has been published in the Yale Alumni Weekly.

The committee in charge included Prof. Winthrop M. Daniels, Prof. Samuel W. Dudley and Prof. Charles J. Lilden. Following is an abstract of the published report:

Yale for some time has been offering various courses of instruction bearing more or less directly upon transportation, but these courses have had no intimate relation to one another, and the President and Corporation decided early in 1924 that the time had come for considering a comprehensive co-ordinated program of transportation studies, both graduate and undergraduate.

A preliminary canvass of the work now under way in this field was decided on and two well qualified men, both holding Strathcona fellowships, both with some practical experience in transportation service, and one of them a practical engineer, were detailed to visit, inspect and report upon the facts relating to transportation work as they were found in certain of the more important regions of the North and East. They have made inspections and inquiries in representative quarters in New England, eastern Canada, the Middle West, Washington, D. C., and Greater New York. About twenty universities and technical schools have been visited, as well as about 100 transportation agencies, and some 300 outstanding leaders in this field have been interviewed. The scope of the work is not confined to transportation by railway, but has touched upon waterway, highway, and air-way transport, both on the engineering and the economic sides. An abstract of the findings of the Survey will probably be printed.

While it is too early to formulate the more instructive tendencies disclosed, the following facts are indicated: First, there is no unanimity and surprisingly little definiteness in the views entertained by transportation leaders as to what the relation of schools to the transportation machine could or should be. There is a view widely held that in this practical field nothing but hard-won experience in actual service really avails anything.

Second, the courses offered in colleges and schools are often stereotyped, and unrelated to the actual business of transport.

Third, investigations of a scientific character in the transportation field are surprisingly few and meagre, outside the workshops and laboratories of certain big transportation industries and their affiliated supply agencies. The best equipped laboratories are those of the General Motors, the Bell Telephone System, the General Electric Company, and similar commercial organizations. Indeed the future of the purely scientific laboratory except as a training school in fundamentals is seriously in question.

Fourth, the demand for instruction in transportation as evidenced by election of or attendance on courses in colleges is anything but encouraging. Where the demand for instruction on the part of students is substantial, it is largely along vocational lines, outside the regular residential colleges, and is motivated by the practical prospect of obtaining vocational competence wherewith to earn a livelihood.

Fifth, on the part of transportation companies there is little or no demand for men simply because they have had a college course, even a college course that purports to give some inkling of the general aspects of transportation. Few of them make any canvass of prospective graduates yearly, as the American Telegraph & Telephone Company does, to enlist the elite in their employ. They apparently have little faith in West Point or Annapolis methods in building up the nucleus of future officials, but prefer to take their chances of developing promising material from the ranks.

Sixth, there is a widespread expression of feeling among railroad officials that college men as a class are unpromising candidates out of which to make executive heads of transportation companies. College men are said not to be "steady pluggers," are impatient of promotion, and overrate their value, when green, to the company. One railroad president says they are liabilities, not assets, when taken on. Are the officials wrong or are the colleges on the wrong track?

Seventh, where universities offer a rather extensive program of transportation studies, to candidates for the first degree, the response has been, on the whole, disappointing. * * * The success of certain broad fundamental courses in railroad engineering is to be ascribed to the fact that engineering principles can often be best illustrated and applied through the study of transportation projects.

Some railroad executives express a sympathetic interest in university work in transportation, but their suggestions as to the content or nature of instruction are exceedingly vague. The late Mr. Kruttschnitt of the Southern Pacific once outlined a three-year student course in various branches of railroad work, and for a time organized such a course. The outcome was rather disappoint-

ing, and it is believed that the project will not be revived on that system.

The promising spots in the picture are few and not closely related. The outstanding excellence of railroad instruction in the Graduate School of Business Administration at Harvard has not evoked a commensurately appreciative response. The co-operative attitude of the Boston Elevated and training M. I. T. students of transportation is commendable.

The Bureau of Public Roads of the Department of Agriculture prosecutes most painstaking research into the physical features of highways, into the flow of traffic over roads, and into the economic questions of highway transport; the University of Illinois and Purdue University pursue extensive investigations into the structural, mechanical, and electrical features of railways; the Bureau of Railway Economics is distinguished for its scientific compilation and analysis of statistics of rail carriage; the Board of Engineers for Rivers and Harbors, together with the Bureau of Research of the Shipping Board, makes intensive studies of the ports of the United States and compiles statistics of water-borne commerce; under the direction of the National Advisory Committee for Aeronautics, the Bureau of Standards, as well as the Army and the Navy, prosecute much aerodynamic research; the Massachusetts Institute of Technology is also an extensive worker in this latter field, while the University of Michigan has recently added an excellent wind-tunnel to its equipment. High expectations are entertained of Mr. Guggenheim's recent gift to New York University, its purpose being to develop industrial engineers in aeronautics. The huge scientific laboratories maintained by such corporations as General Motors and the General Electric seem to preempt a great deal of research which was previously performed at the universities. This work is conducted on a high scientific plane and is by no means always connected with their own industry.

But it hardly exaggerates the picture to say that aside from vocational study in traffic management and accounting, university instruction in transportation is often of a routine, and sometimes of a decidedly mediocre character; that so far as scientific investigation and experiment are concerned, they are prosecuted by many agencies of which universities are but one, and among which commercial concerns are increasingly important; that leaders in transportation are either skeptical of the utility of university work in transportation; or, where not skeptical, entertain for the most part ideas as to the desirable content and character of transportation study so vague as to afford little in the way of constructive guidance.

The field of transportation is so vast that no university can hope to cope adequately with more than a small sector of the whole subject; and it is equally evident that to duplicate work already done admirably at a few places would be a wasteful expenditure. * * * If the recital above is discouraging, there is at least this much already gained through the Survey. It has made evident what should be avoided in the Yale program. The harder task of positive and constructive recommendation awaits the further study of the problem of what Yale can most advantageously undertake in the transportation field.

THE FIRST CUBAN EXPOSITION in America was held at the Hotel Pennsylvania, New York, November 16 to 21, the purpose being to increase and cement the friendly and commercial relations between Cuba and the United States. Among the exhibitors were the American Car & Foundry Company, the American Locomotive Company, Consolidated Railroads of Cuba, Havana Central Railroad and the Magor Car Corporation.

Factors Which Govern Railroad Electrification*

By F. H. Shepard
Director Heavy Traction, Westinghouse Electric & Manufacturing Company

FOR the lines of railroad not congested and the lesser lines of railroad, some constituting feeders to the main thoroughfares, others local and branch lines, but aggregating in mileage some 175,000 miles of railroad, the need and probability of electrification is remote. The modern up-to-date steam locomotive has been developed during recent years to be a better machine in every way, more powerful and less wasteful than its predecessors, thus reducing the possible coal saving by the use of other power. The development of the internal combustion engine, both the gas and Diesel types as now applied to rail cars and locomotives, particularly with the electric drive, promises much of advantage and savings where traffic is comparatively light. There will be lines of railroad abandoned to the automobile truck and bus operating on parallel improved roads and all such service of an essentially local nature will undoubtedly work out to be a complementary to the major railroad services.

While the railroads in America account for some 50 per cent of the world's rail movement, we have barely 25 per cent of the world's railroad electrification in locomotives built and building.

Electrification of more or less extent now exists in Norway, Sweden, Germany, Austria, Switzerland, Italy, France, Spain, Holland, and England; and also in Japan, Java and India, as well as Australia, New Zealand, South Africa, Chile, Brazil and Argentine. In some of these countries, notably Sweden, Germany, Switzerland, Italy and France, as well as Japan, schedules for material extension of electrification are in active progress; in each case being prompted by the relative scarcity and high cost of coal. Here, in America, with our abundant supplies of coal, the advantage of electrification from coal saving, while important, is not controlling, and, as in the past, the extension of electrification here in America will be dictated more by other reasons, the chief one of which is that of increased capacity for traffic movement. While the operation of electric service has been successful and advantageous wherever undertaken, there is still much advantage which will accrue due to the facility and expedition with which an electric service can be handled. With the extension of electrified operation, which we may look forward to in the future, will come the more rapid movement of trains, less time on side tracks at intermediate terminals, and greater dispatch and quicker handling of equipment at terminals due to the greater regularity and certainty of electric operation which will permit the scheduled movements for the great bulk of rail shipments.

The prospect as to time of the progress of electrification in America depends upon public opinion. Our legislative bodies have, in the past, been restrictive as regards the railroads, so that their future has, during recent years, been a matter of serious concern, but recent constructive legislation has followed more liberal sentiment due to the general appreciation of the vital necessity for prosperous railroads. Unless the railroads can prosper, major improvements must necessarily halt and electrification is a major improvement. A review of the situation in prospect, indicates a large expansion of railroad electrification in America.

*Extract from a lecture delivered at Yale University on November 18.

Economics of Automatic Signaling

A. Holley Rudd sets forth his creed—Cost of Pennsylvania's experiments—Cab signals advocated

A. H. RUDD, chief signal engineer of the Pennsylvania, speaking before the Engineers' Club of Philadelphia, on November 17, set forth in considerable detail his views on the general question of safety of train operation and, in particular, on the course which a railroad company ought to pursue in the wise expenditure of its money for the most effective protection of the lives of its passengers and its employees (and of travelers on the highway at railroad crossings). Mr. Rudd's views in this field have been published before, especially in the paper that he read before the Signal Section of the American Railway Association, at Swampscott, Mass., in September, 1924; (*Railway Age,* October 11, page 645); but in the present essay he makes a more thorough study, citing the main facts in considerable detail.

Automatic block signaling is a comprehensive term which properly may be taken as including cab signals as well as visual (or audible) roadside signals; and we may go further and include in this definition the automatic setting of brakes on a train by means of an electric impulse which has been originated by a preceding train. This is said by way of explaining the title of this article, which was put on by the editor, not by Mr. Rudd; and the word "economics" includes, of course, every ramification of the subject.

In opening his address, Mr. Rudd said that he was speaking only for himself, not as a representative of the railroad company; and that he would not criticise the Interstate Commerce Commission; observing, however, that while, perhaps, the signal engineer is today exaggerating the importance of automatic train control, it is quite probable that the members of the Interstate Commerce Commission do not fully realize it. He went on to discuss the philosophy of safety on railroads in all its phases. Considered entirely by themselves, automatic devices might be said potentially to be able to save 15 passengers a year (estimated value $1,500,000); but to equip all of the railroads of the country is simply out of the question; the railroads do not control all of the capital in the world. This element cannot be considered by itself. The speaker then went on to recount the results of the enormous expenditures which the railroads have made in recent years to promote safety—better tracks, better locomotives, better cars, increases in block signal mileage, improvements in discipline and great advances in the morale of employees. Discussing the relation of the government to this situation, he referred to the advocacy of the block system [visual wayside signals] by the Interstate Commerce Commissioners and by the Hon. John J. Esch, formerly congressman, now Interstate Commerce Commissioner; and queried why these men had dropped that line of argument and were stressing automatic train control, to the exclusion of other safeguards.

The recent decision of the commission in the Great Northern case was cited as showing its doubtful or uncertain position on the important question of automatic train control. The speaker presented a summary of railroad accidents for a series of years showing what an exceedingly small proportion of the deaths and injuries could have been classed as preventable by automatic train control.

The course of the Interstate Commerce Commission during the past three years in the administration of its Order No. 13,413 was narrated at length, particularly in regard to its dilatory action in connection with the Pennsylvania experiments; and in passing the speaker observed that the recent collision on the New York division of the Pennsylvania, which has called down some criticisms on the heads of the railroad management, occurred on a section of road which was not included in the automatic train control order that was issued by the commission. With these developments in connection with Order No. 13,413 the readers of the *Railway Age* are already familiar.

Following the supplementary order of the commission, which allowed the use of automatic train stops with the forestalling feature, and the decision of the United States Court in the Delaware & Hudson case, extending the time within which the orders of the commission must be complied with, the Pennsylvania (and also a number of other roads) made changes in their plans and decided to use the intermittent stop and forestaller. Outlining his reasons for this course, Mr. Rudd said:

"The intermittent stop and forestaller will, if operative, stop a train whose engineman has missed a signal entirely, or who has misread the signal, unless he operates the forestalling device as a matter of habit. If he has so annulled, he may run at any speed he pleases until he reaches the next signal. With the continuous device, he may do the same thing, but, if conditions become less favorable ahead while he is at any point in the block, he will receive warning and, unless he again forestalls, will be stopped.

"Speed control may be one-speed, two-speed, or three-speed. One-speed requires that, if the engineman wishes to annul the operation of the device, he must be proceeding at low speed. Two-speed may consist either of a maximum-speed governor working independently of the train-control and the slow speed referred to, or may require reduction of speed at the caution signal and a further reduction at the stop signal, before the stop feature can be annulled. Three-speed consists of the latter device, just described, with a maximum speed governor in addition. With speed control, excessive speed at various places may be guarded against. As these various features are added, the cost and complication of the apparatus increase.

"There is no doubt that a stop and forestaller, properly installed and maintained, will prevent a small number of wrecks, or at least minimize their disastrous effects; and that speed control will perhaps eliminate some others.

"Considered entirely by itself, the control or stop would be justified on parts of many railroads; but it should not be considered by itself. The Interstate Commerce Commission has authority to order the installation of other safety devices. We have shown the advantages of the [visual wayside] block system, especially the automatic. We must admit that under this we have some accidents and an occasional loss of life, which automatic train control would prevent. But the greatest loss of life in railroad operation today is at the highway grade crossing, and the same money spent for the protection of highway crossings would, except in the case of the unfit driver, save more lives than automatic train control.

"There are many other things in other departments

which require large sums of money, but, taking my own department alone, if our management were in a position to give me all the money I could spend, I would first install automatic block signals, with alternating current track circuits and light signals (without moving parts) on our double track and four-track lines; controlled manual block on important single track lines, later putting in automatic signals for following movements; adequate warning to the public using the highways, of their approach to a railroad crossing, and at many places automatic signals on the highway indicating the approach of a train; extension of the manual block system to lines where it is not now in use, which, in our case would be lines used exclusively for freight service; unless as a matter of economy, it were better to install automatic signals.

"On the completion of this work and as a final precaution, I would install continuously controlled two-speed cab signals, on the lighter lines and three-speed on the heavy traffic lines, superimposed on the [wayside] signal system, one for the engineman and one for the fireman, which would accomplish all that the train stop does unless the engineman and fireman were both incapacitated at the same time.

"Meanwhile I would develop, on a trial section the full automatic control apparatus, so that, if it were conclusively shown that further safeguards were needed, a simple device could be superimposed as a final precaution."

This line of procedure, when taken in connection with records of serious collisions may seem heartless and unreasonable; but, said the speaker, we have still to consider the large proportion of fatalities from other causes. On the Pennsylvania Railroad in the first nine months of this year, 191 persons were killed in automobiles struck by trains, and 760 injured. Every ten days, seven persons are killed in automobile grade crossing accidents on the Pennsylvania lines.

"Observers and critics everywhere give special prominence to the idea that the use of train control eliminates the human equation. It does not. It may guard against a mistake of the engineman, whatever its cause, but it will not afford this protection if the man who installs it or maintains it makes a mistake; and these mistakes have been made and are made by men in every walk of life, and the railroad man is no exception. If such mistakes are made, if the signals indicate 'proceed' when they should indicate 'stop', if the automatic stop device fails to operate at the critical time, when perhaps the engineman is depending upon it more or less, the situation is, under such conditions, worse than if such device did not exist.

"If the installation of these devices is forced to such an extent that they become general, the results, as between the man who runs the engine and the man who maintains the apparatus may be such as to require a reranking of various classes of railroad labor.

"The maintainer's position may be the more important of the two.

"It is claimed, and apparently properly so, that, in view of the varying weights, speeds, and makeup of trains, varying efficiency of the air brakes, varying atmospheric conditions, etc., no two trains are braked alike—those who ride our trains realize this, and the important part that the human equation plays. With the apparatus always applying the brakes in one particular way on all these various classes of trains, will the results be better than at present? Or, will they be worse?"

Costly Experiments

Mr. Rudd then presented some memoranda showing the cost of the experimental installation of the three-speed continuous automatic train control on the Lewistown (Pa.) branch of the Pennsylvania Railroad:

First Cost (to July 11, 1923)	$285,000
Cost of Development Work (to November, 1925)	45,000
Total, Installation and Development	330,000
Maintenance (to November, 1925)	89,000
Total	$419,000

Of the maintenance charges, $43,500 is assigned to the roadside apparatus; $38,000 to locomotives and to electric current $7,500.

Having decided to make no further installations of this system, the company is installing the stop and forestaller on its line from Harrisburg, Pa., southward to Baltimore, Md., 84 miles. The appropriation for this, including automatic roadside signals and one interlocking is $1,582,883. The train stop, including 187 locomotives, takes something less than one-third of this total. The average cost per mile, double track, thus will be, for wayside signals $11,553 and for automatic stop, $1,622; locomotive equipment, per locomotive $2,600. From Harrisburg to York, 27 miles, construction will probably be finished by February. Estimating on the same basis for other sections of the Pennsylvania System on which the government calls for automatic train control, the costs would be:

Camden, N. J., to Atlantic City, 58 miles, including some changes in wayside signals, $955,322. West of Pttsburgh, (P. C. C. & St. L., where will be included large numbers of new signals) 340 miles of road, $5,704,100. Middle division, 130 miles, mostly four track, already equipped with automatic signals, $1,023,400. Grand total $7,682,822. Of this total, automatic train control would be chargeable, roughly, with about four millions. If speed control is provided, the cost will be approximately $1,150,000 additional, based on the cost of speed control as installed on the Lewistown Branch. It is believed, however, that the new and simplified development can be provided for at least 40 per cent less, or at an additional cost of $700,000.

Freight Car Loading

STATISTICS on freight car loadings in the United States for the week ended November 14 were not forthcoming from the Car Service Division of the American Railway Association at the time this issue of the *Railway Age* went to press. They will appear in the next issue.

Car Loading in Canada

Total revenue car loadings at stations in Canada in the week ended November 14 were 73,746 cars, which was 3,624 cars below the previous week but 10,050 cars above the same week last year. The Canadian Thanksgiving Day holiday on November 9 had an effect on merchandise and miscellaneous freight, the drop in the former being 2,087 cars and in the latter 1,786 cars. Grain loading in the West showed an increase of 1,393 cars and aggregated 17,861 cars, which is the third heaviest week's loading this year.

	Total for Canada			Cumulative totals to date	
Commodities	Nov. 14, 1925	Nov. 7, 1925	Nov. 15 1924	1925	1924
Grain and grain products	21,626	20,784	15,134	393,603	417,459
Live stock	3,191	3,246	3,622	111,387	108,501
Coal	8,261	7,602	8,394	197,494	248,582
Coke	457	400	273	13,522	10,662
Lumber	3,230	3,493	3,544	163,312	165,459
Pulp wood	1,364	1,317	1,095	116,720	115,431
Pulp and paper	2,351	2,195	1,956	93,627	90,192
Other forest products	2,660	2,942	2,092	129,283	117,668
Ore	1,620	1,823	1,503	65,497	58,050
Merchandise, l. c. l.	14,321	16,899	13,742	702,106	671,062
Miscellaneous	14,665	16,669	12,341	595,034	563,875
Total cars loaded	73,746	77,370	63,696	2,581,585	2,566,941
Total cars received from connections	33,953	34,923	29,863	1,525,287	1,447,975

General News Department

The Switchmen's Union of North America will call a meeting of its general chairmen in the near future to consider proposals for demands for wage increase and changes in working conditions.

The Illinois Central and the Central of Georgia have withdrawn their application to the Interstate Commerce Commission for authority for the operation by the Ocean Steamship Company of Savannah of service by water between Savannah, Ga., and Miami, Fla.

James C. Davis, director-general of railroads, and C. C. Cook, chairman of the Committee on the Economics of Railway Labor of the A. R. E. A., will present papers on the general subject of railroads at the next meeting of the St. Louis Railway Club on December 11.

The labor organizations representing employees of the Denver & Rio Grande Western have united in protesting to the Colorado Public Utilities commission against the granting of a certificate of convenience and necessity to the Motor Transportation Company which has applied for permission to operate motor buses between Grand Junction and Colorado Springs, and between Glenwood Springs and Aspen. Citizens of Grand Junction and others have also joined in opposing the petition.

The Veteran Employees' Association of the Pennsylvania Railroad general office forces, at Philadelphia, held its fifth annual banquet at the Bellevue-Stratford Hotel on Thursday evenng, November 19. This association is composed of employees who have had at least 21 years of service with the company. It numbers over 1,900, including practically all the higher officers of the road there located. It was organized in February, 1921, There are on the entire system, 41 other veterans' associations; total membership 43,000.

The Railway and Locomotive Historical Society, 6 Orkney Road, Brookline, Mass., has issued its Bulletin, No. 10, a pamphlet of 58 pages devoted largely to detailed accounts, apparently made up from files of old daily newspapers, of the locomotives which were used on the Long Island Railroad in the years 1835-1915. There is also an account of the Norris Locomotive Works, Philadelphia, reprinted from the *Railway Age*, and some British items. In the years 1837-1855 the Norris Works shipped over 100 locomotives to England, France, Prussia and other foreign countries.

Proposed railroad legislation, including changes in the transportation act to encourage voluntary consolidations of railroads subject to approval by the Interstate Commerce Commission, were discussed with President Coolidge on November 21 by a committee representing the National Association of Railway and Utilities Commissioners, accompanied by C. C. McChord of the Interstate Commerce Commission. The delegation included W. D. B. Ainey and James S. Benn, of the Pennsylvania commission; A. G. Patterson, of the Alabama commission, president of the National association, and H. G. Wells, of the Massachusetts commission. The association, at its recent convention, favored legislation to provide for voluntary consolidations without a prepared plan.

Travelers' Aid Week

George LeBoutillier, vice-president of the Long Island Railroad, speaking for the Travelers' Aid Society of New York, appeals for $350,000 for the support of this philanthropic institution, a "drive" having been planned with the expectation of raising this sum, in the week beginning the first of December, in New York, New Jersey and Connecticut.

The Travelers' Aid Society of New York maintains regular agencies in New York City stations and altogether in the city and environs, employs a staff of 61 workers. At the Pennsylvania and Grand Central stations alone about 40,000,000 persons arrive or depart in a year, and 40,592 were aided by the Travelers' Aid workers in the year 1924. In addition large numbers of immigrants are helped at the piers.

The Travelers' Aid also maintains an office at 144 East 44th street, New York, and a guest-house at 139 East 43rd street. The society co-operates with similar organizations in other cities, service being maintained in over 1,400 cities and towns in the United States.

Smalley Rail Car in Chicago December 1 and 2

A gasoline rail car recently built by the Smalley Rail Car Company, Davenport, Ia., for the Susquehanna & New York, is routed from Davenport over the Rock Island and will be in Chicago for inspection on December 1 and 2.

The car, which is 60 ft. long and driven by two Climax heavy duty four-cylinder motors, is provided with seats for 50 passengers and a baggage compartment 19-ft. 8-in. long. The car is designed to haul a 60-ft. trailer for regular service or a standard coach in emergency.

Central Railway Club Meeting

The next meeting of the Central Railway Club will be held on December 3 at the Hotel Statler, Buffalo, N. Y., at which meeting a paper will be read on "The Best Means of Promoting Friendly Relations Between the Public and the Railroads," by Harry F. Burber, plant manager, National Aniline Company, Buffalo. G. C. Woodruff, assistant freight traffic manager, New York Central, Buffalo, will deal with the subject from the viewpoint of a railroad traffic officer, and R. E. Woodruff, superintendent, Erie, Buffalo, from that of a railroad operating officer.

Locomotive Inspection Report

The Bureau of Locomotive Inspection of the Interstate Commerce Commission in October inspected 8,257 locomotives, of which 3,508 were found defective and 342 were ordered out of service, according to the commission's monthly report to the President on the condition of railroad equipment. In the same month the Bureau of Safety inspected 112,977 freight cars, of which 3,983 were found defective, and 2,085 passenger cars, of which 22 were found defective. During the month 22 cases, involving 51 violations of the safety appliance acts, were transmitted to various United States attorneys for prosecution.

Labor Leaders Confer on Proposed Demands

General chairmen of the Brotherhood of Locomotive Firemen and Enginemen at a series of meetings in Chicago beginning on November 19, discussed the amount of the increase in wages which they will ask the railroads to approve this winter. While it was expected that this meeting would decide to ask the restoration of the rates of pay in effect prior to the decrease authorized by the United States Railroad Labor Board in July, 1921, considerable objection to this was encountered. While no announcement will be made by the brotherhood as to the extent of its demands until they have been put formally to the railway managements, it is expected that the increase sought will amount to approximately seven per cent. This increase, if granted, added to the five per cent increase authorized by virtually all railroads last year, would fully restore the rates in effect in 1921 before the 12 per cent decrease went into effect.

At a meeting at Cleveland, Ohio, on November 19, the eastern general chairmen of the two train service brotherhoods, the Brotherhood of Railroad Trainmen and the Order of Railway

Conductors, gave their approval to the proposals adopted by the western and southern associations for a petition to the managements for a wage increase, the amount of which is understood to be approximately seven per cent. Formal approval of the membership of the brotherhoods is now to be secured, after which the wage increase request will be submitted to the railroads.

Report of Alaska Railroad

The deficit of the Alaska Railroad for the fiscal year 1925 amounted to $1,246,674, a decrease of $489,901 over the previous year, according to the annual report of the general manager submitted to the Secretary of the Interior. Total tons of commercial freight moved by the railroad in 1925 amounted to 53,865, a loss of 5,667 tons or 9.7 per cent due to decreased shipments of ore. Freight revenues during the fiscal year amounted to $412,194 representing a decrease of $20,980 or 4.8 per cent. The total number of passengers carried in 1925 was 48,300, a loss of 1,165 or 2.4 per cent. The decline in the operating receipts, the report points out, was more than offset by reduced maintenance costs and in economies effected in the general expenses of the road. The total pay roll in 1924 amounted to $2,498,430. In 1925 it was $2,051,026, a reduction of $447,403 or 17.6 per cent. The average number of employees in 1924 was 1,056; 981 in 1925.

The general manager in his report again calls attention to the necessity of completing the railroad, the estimate of the cost being $11,878,781. Expenditure of this amount over a period of years would provide such additional facilities and equipments as would be necessary for efficient and economical operation of the line, he said, and decreased cost of operation and maintenance would also result, bringing a reduction in annual appropriations.

Discussing the future of the Alaska Railroad, the report states that while no rapid development in the territory can be looked for in the next few years, there are indications of a gradual increase in traffic for the railroad; but there is no prospect that the operation of the railroad can be continued for some years to come without substantial appropriations being made to meet the deficit in operation incurred.

Report on Collision at Eau Gallie, Florida

W. P. Borland, director of the Bureau of Safety, Interstate Commerce Commission, has reported on a collision between a passenger train and a freight on the Florida East Coast at Eau Gallie, Fla., on the evening of October 4, when a southbound passenger train, No. 85, first section, ran into the rear of a preceding extra freight, causing the death of a caretaker in charge of a car of poultry, and a trespasser, both of whom were riding in the passenger coach at the rear of the freight, this being used as a caboose. Two employees were injured.

The freight train was at a standstill, having had difficulty in starting, and the passenger train was moving at about 30 miles an hour. The coach in the freight train was wrecked and a dead engine immediately ahead of it was badly damaged, as were many freight cars. A freight train standing on a side track was considerably damaged.

Extra 153—110 arrived at Eau Gallie, about 10 p. m., and headed in on the passing track, it being intended to remain at this point for first No. 85; after pulling in on the passing track a distance of several car-lengths the train was brought to a stop, on account of the fact that northbound extra 126 was heading in at the south switch, and upon receipt of information that the operator had an order directing extra 153—110 to run ahead of train first No. 85 Eau Gallie to Malabar, extra 153—110 was backed out upon the main track and then pulled southward and stopped with the engines about opposite the station. Extra 153—110 was about to proceed southward, an attempt having been made to start the train, when the rear end was struck by train first No. 85.

One of the explanations of the conductor for not carefully supervising the action of the flagman was that the enginemen of his train were not acquainted with the road, and he had to ride in the locomotive to act as pilot.

The conclusion of the report is in substance as follows:

"This accident was caused by the failure of extra 153—110 to be properly protected by flag while occupying the main track on the time of a following superior train, for which Conductor Brendle is primarily responsible.

"After the work at Eau Gallie had been completed, Conductor Brendle authorized Engineman Humphreys to call in the flagman, but delay was encountered in starting and the rear was struck at about the time the flagman had returned. The order to run ahead of train first No. 85 from Eau Gallie to Malabar did not in any way relieve the crew of the extra from properly protecting the rear of their train while standing on the main track north of the station at Eau Gallie on the time of train first No. 85, which at the time of the accident was overdue on the run-late order; under these circumstances the flagman should not have been recalled. Not only was Conductor Brendle at fault for authorizing the recall of the flagman, but the flagman should have taken more efficient measures toward providing the proper degree of protection. This flagman, however, was an inexperienced man, and his statements indicated that he did not have a thorough understanding either of the duties of a brakeman or of a flagman; in fact, Conductor Brendle was the only man on the train, with the possible exception of the colored fireman of the first engine, who was acquainted with the road. The regular flagman had been left at a previous station and the head brakeman was occupying the position of flagman. He was known by Conductor Brendle to have been an inexperienced man. While the circumstances were such that Conductor Brendle had duties to perform at the head end of the train, none of these duties was of as much importance as that of knowing that the rear of his train was properly protected and that the man assigned for that purpose knew what he was supposed to do. Conductor Brendle left Brakeman Horne to do as he thought best, and on account of his failure properly to instruct this man, his error in authorizing the recall of the flagman with a following superior train already overdue, and his failure to comply with the rule relative to the moving of the train ahead while awaiting the return of the flagman, Conductor Brendle is responsible for the occurrence of this accident.

"The colored fireman of the first engine said he had been employed on this railway for a period of about one year; with this exception, Conductor Brendle was the only member of the crew who knew the road, the two enginemen, the fireman of the second engine, the head brakeman and the flagman having been employed in engine or train service on this railway for periods not exceeding two weeks. Under these conditions the responsibility of Conductor Brendle was greatly increased, and it was his duty to take extra precaution for the protection of his train. This he failed to do.

"Had an adequate block-signal system been in use on this line, this accident probably would not have occurred; an adequate automatic train stop or train control device would have prevented it."

Stops Eliminated on the Rock Island

Joseph Beaumont, vice-president of the Regan Safety Devices Company, speaking on automatic train control before the Engineers' Club of Philadelphia, on November 17, reported results of using automatic train control on the Rock Island as being highly profitable in doing away with the need of stopping trains at "stop-and-proceed" signals. He said, in part:

"Automatic train control is not alone a safety proposition. It is also a vital matter affecting the earning power and the capacity of the railroads. Automatic train control—including speed control—will pay handsome returns per dollar invested. Having installed speed control to insure safe speed when passing a stop-and-proceed signal, there is no need to stop at such signals to insure that the train is under control. Such has been the practice for two years on the Illinois Division of the Chicago, Rock Island & Pacific; 165 miles of double track and 102 locomotives, equipped with the Regan automatic train control system.

"A systematic analysis was made during September last to determine the exact number of stops actually eliminated by operation under this automatic train control system. Enginemen were instructed that when a train was compelled to stop because of a train in the block, even after passing a signal, under enforced low speed without stopping, that this should not be considered as a stop eliminated by automatic train control. The results of this check showed that an average of 132.1 freight train stops and 12.8 passenger train stops were eliminated per day—an average of 48,216 freight and 4,672 passenger train stops eliminated per annum. This is equivalent to 7,045 freight train hours per annum and a substantial figure for passenger trains which has not been computed. This analysis covered a 30 day period—September 15, 1925, to October 14, 1925, inclusive.

"As the result of more smooth operation with the Regan system the Rock Island has been able to space its trains far more efficiently under the principle of spacing trains by enforcing restricted speed at automatic block signals."

Traffic News

The Central Western Regional Advisory Board will hold its annual meeting at Alliance, Neb., on December 1.

The Northern Pacific has been granted permission by the Minnesota Railroad and Warehouse Commission to discontinue the eight daily passenger trains operated on its Fond du Lac branch between Duluth, Minn., and Fond du Lac, after January 1.

The Atchison, Topeka & Santa Fe will begin, on November 30, the operation of the newly constructed line from Elkhart, Kan., to Felt, Okla., a distance of 59 miles, which was built by its subsidiary, the Elkhart & Santa Fe. On the same date the Panhandle & Santa Fe will begin the operation of the newly constructed line from Doud, Tex., to Bledsoe, a distance of 63 miles, constructed by a subsidiary, the South Plains & Santa Fe.

Proposed increases in grain rates from North Dakota points to Minneapolis, Minn., Duluth and Chicago grain markets, were suspended until June 1, 1926, by the carriers at the opening of hearings before the Interstate Commerce Commission at Fargo, N. D., on November 19. The proposed rates were to become effective August 10 but were suspended by the Interstate Commerce Commission until November 20, pending hearings which started on November 18.

A mid-winter golfing tour to points on the east coast of Florida, sponsored by "The Chicago Golfer," will be conducted by the Illinois Central, leaving Chicago on the Floridan on December 1 and returning on the Seminole on December 14. Arrangements have been made for playing privileges on courses along the route. One day will be spent at Ormond, Fla., two days at West Palm Beach, three days at Miami, one day at Daytona, one day at St. Augustine, and one day at Jacksonville. A round trip ticket will be sold which will include round trip fare from Chicago to Miami, sleeping car accommodations for 14 days and meals en route to and from Jacksonville.

Illinois Commission Answers in C. & N. W. Injunction Proceedings

The Illinois Commerce Commission and the state's attorney of Illinois have filed a joint answer to the Chicago & North Western's petition for a permanent injunction restraining the Illinois Commerce Commission from enforcing suburban rates proposed by it instead of those allowed by the Interstate Commerce Commission which are now in effect. The railroad company applied to the commission last spring for increases and later applied to the Interstate Commerce Commission for the same increases. The Interstate Commerce Commission ordered the increased rates put into effect in October, but the Illinois commission refused to withdraw its ruling, made last spring, suspending them. The Chicago & North Western asked the federal court at Chicago to enjoin the Illinois commission from interfering with the collection of increased suburban fares as approved by the federal commission. Subpoenas were issued to the governor, the attorney general and the state's attorneys of five counties in Illinois calling on them to show cause why the injunction should not be made permanent. A temporary injunction restraining the Illinois Commerce Commission from interfering with the order issued on October 6 by the Interstate Commerce Commission allowing the Chicago & North Western to make effective a 20 per cent increase in suburban fares, was issued by three federal judges in Chicago on October 23. The court said that in issuing the temporary injunction the decision of the Supreme Court was being followed. The Illinois Commerce Commission continued its hearing on the increases and completed the taking of evidence for the purpose of presenting its case, when a hearing is called on the question of making the injunction permanent.

Publishers Oppose Increase in Railway Mail Pay

Publishers of newspapers and periodicals, through the American Publishers' Conference, have petitioned the Interstate Commerce Commission for leave to intervene in the railway mail pay case as a protest against claims of rail carriers for increased compensation. The publishers contend that any increase in the pay of the railroads for handling the mails would probably bring about higher postage rates on second class matter and seriously restrict the distribution of their publications through the mails. If the government is obliged to make this increase the petitioners claim it "will result in increasing the allocations to second class mail matter showing alleged cost of transporting this class of mail matter; and such findings as to costs will be the basis of unjust and unreasonable increases in postage rates on publications."

The railroads are asking for increases which would aggregate several million dollars, basing their claim in part on the allegation that the present loading of cars is twice what it was when rates were last fixed by the commission. The publishers deny this.

Florida Division of Regional Advisory Board to Be Organized

With a view of bringing about a better understanding and a more expeditious solution of the transportation problems in Florida, a division of the Southeast Regional Advisory Board is to be organized in that state at once.

Steps preliminary to the organization of the Florida division were taken at a conference on November 24 at Jacksonville. As a result of that meeting, a general organization committee, representing the public, and a so-called contact committee, representing the carriers, will be charged with the responsibility of taking a thorough inventory concerning the necessities incident to a proper and representative organization, and a general conference will be held about December 15.

The proposed organization, set up as a distinct unit in the Southeast Region, will thus establish the same constant relationship between shippers, receivers of freight and the carriers with the Car Service Division, A. R. A., as has been so effective in other districts. There are now 12 such regional advisory board organizations. Because of the great importance and the national interest in the Florida situation, it is felt that a separate state organization in that territory is advisable from both the standpoint of the public and the carriers.

The regional board organizations and their relationship to the carriers have been endorsed by practically every agency of government, including the Department of Agriculture, the Department of Commerce, the Federal Reserve Board, the Interstate Commerce Commission, and the National Association of Railway and Utilities Commissioners; also practically every national trade and farm organization.

THE NEW YORK CENTRAL has filed with the Interstate Commerce Commission a motion to dismiss the complaint filed recently by the Sprauge Safety Control & Signal Company, charging violations of the law in connection with the installation of automatic train control, which the commission has set for hearing on December 1. On November 10 the railroad company filed a petition for a bill of particulars, which was later furnished, and it says that the allegations, even if true, do not constitute violations of Section 1 of the interstate commerce act, because the provisions of that section do not apply to automatic train control.

THE TECHNICAL INVESTIGATION committee appointed by the Belgian Colonial Minister in 1924, to study the proposed electrification of the narrow-gage Congo Railway, which runs from the port of Matadi, at the mouth of the Congo, to Kinshasa, on the navigable upper river, has reported in favor of immediate electrification, according to Modern Transport (London) which goes on to report that the Congo Railway was begun in 1891 and completed in 1898. It is 248½ miles long. The management of the railway company has either failed to foresee the rate at which traffic would expand or has been prevented by financial difficulties from taking the necessary action to modernize its line, to keep its rolling stock in repair and to supply new locomotives and wagons to cope with the flow of produce and goods. The result has been a deplorable bottle-neck for some years, all the more accentuated since all the traffic for the western portion of the colony must of necessity pass by this route. The railway is only of 2 ft. 6 in. gage, and the gradients and curves through the Crystal mountains, which it crosses at an altitude of 2,000 ft. are very severe.

Foreign Railway News

Fatal Accident in Russia

Twenty-two persons are reported to have been killed and as many injured in a collision between a Warsaw-Riga express train and a freight train at Dunaburg, Russia, on November 12. An error by a signalman is reported as the cause of the accident.

British Employees Will Not Serve Mussolini

The secretary of the enginemen's union in Great Britain is reported to have hinted recently that his union might take a stand against handling any train on which Benito Mussolini, Fascist premier and dictator of Italy, might plan to ride on his contemplated trip to Great Britain. Opposition to Mussolini is, apparently, based on the fact that he refuses to recognize any trade unions other than those associated with the Fascist society.

Austrian Railway Electrification

In addition to the electrification of the Innsbrueck-Bludenz section of the railway line from Arlberg, which was opened four months ago, the Austrian Federal Railway Board has recently electrified the Stanach-Inning and the Attnang-Puchheim lines, the total length of which is 151 miles, according to Modern Transport (London). The necessary power is supplied by a station on the Spullersee. The economy in coal resulting from the electrification of these two lines will amount to about 130,000 tons a year. The electrification of the Salzburg-Woergl-Innsbrueck-Brenner, Kufstein-Woergl and Simmering-Gloggnitz-Murz lines will be begun in the near future.

Miscellaneous

The Bureau of Foreign and Domestic Commerce has received the following reports from its agents in various parts of the world:

One hundred and sixty all-steel coaches have been ordered from Cammel Laird & Co., Ltd., of England, in connection with the electrification of the Bombay, Baroda & Central India Railway.

The rebate system on the German railways has been revived on certain classes of export commodities. When the accumulation of Ruhr coal became critical several months ago, freight rates from Westphalia to Hamburg and other ports were reduced in an effort to prevent the entry of British coal. It is now announced that, beginning October 16, shipments of iron and steel and various half-steel fabricates to Italy will enjoy special rebates.

The Norwegian State Railways showed a surplus of 9,943,000 crowns during the fiscal year ended June 30, 1925. This was an increase of 12,140,000 crowns over the estimates in the budget.

Austrian passenger fares will be increased 15 per cent, effective January 1, 1926. This increase will re-establish the average pre-war levels.

British Railways Face Criticism in House of Lords

Lord Monkswell, whose sharp criticism of the British railways for the character of service they offer, recently provoked a lengthy discussion in the "letters to the editor" columns of the London papers, now plans to bring the matter before the House of Lords. Modern Transport (London), reports that he has given notice that when Parliament reassembles he will call the attention of the government to the fact that the railways since their amalgamation have failed to remove certain serious defects affecting the convenience and safety of the public. He is to ask the government to urge on the railways the immediate adoption of the following improvements:

The acceleration of express trains; the issue to engine-drivers of precise instructions about the making up of lost time; the adoption of mechanical safeguards against excessive speed on sharp curves and other danger points; the full and complete investigation of improved rail-joints; and the adoption of third class sleeping carriages.

New Line Opened in Siberia

A statement issued by the Russian Information Bureau at Washington based on reports from the Soviet Commissariat for Transport announces the completion of the Achinsk-Minusinsk Railroad, in south-central Siberia, and the opening of regular service on Nov. 7. The road, 200 miles long, connecting with the Trans-Siberian Railroad at Achinsk, opens up the Minusinsk area, hitherto almost undeveloped though it is one of the richest regions in Siberia and possesses extensive deposits of high-grade coal, iron ore, copper, gold and other mineral wealth. During the current fiscal year the new line will be called on to transport 60,000 metric tons of grain. The road will also act as a feeder for the projected South Siberian Railroad, 1,250 miles long, now under construction.

German Railway Equipment Industry Inactive

The German railroad equipment industry is suffering from a depression, according to Trade Commissioner Pilger at Berlin.

In the domestic market the German State Railways, which formerly absorbed a high percentage of railway manufactures, can not buy because of the economies enforced by the Dawes plan, and probably will not be in the market before 1928. The few privately owned German railways bought heavily during the inflation period and will not purchase new equipment for some time to come. The foreign market is limited by the high cost of German production and by the inability of the Germans to grant long-term credit.

To overcome this situation drastic price reductions have been made, even though they barely covered the cost price. Some producers of railway equipment have attempted to turn their plants to the manufacture of other products, but have had difficulty in finding satisfactory substitutes. Most of the locomotive factories are temporarily closed, are manufacturing other commodities, or, in a few cases, are rebuilding old engines, a considerable number being refitted with three cylinders.

The stock quotations of railway equipment manufacturing companies have dropped off by about 22 per cent since July 1, 1925, and two groups of firms have developed. One group shows a reduction in stock quotations of less than the average, and for the greater part comprises firms which manufacture railway equipment only as a part of their line. The second group is composed of firms depending entirely upon railway equipment orders, whose stock quotations have declined more than the average 22 per cent for the group as a whole. The opinion of the stock exchange is that the firms in the first group can not be considered in as precarious a state as the second. It appears certain that a large reduction in the number of factories must be made if there is to be enough business to satisfy one group. Receiverships and consolidations are anticipated.

German locomotive factories, which before the war built from 1,200 to 1,400 locomotives a year for domestic railroads alone, have obtained orders for only 35 new locomotives during the past two years, according to the director of one of the plants. These figures clearly show the present condition of the industry and explain the low prices recently quoted in the effort to obtain foreign business.

THE NOMINATING COMMITTEE of the Signal Section, A. R. A., has issued its ticket for the election to be held next March: for chairman, A. H. McKeen (U. P.); first vice chairman, C. H. Tillett (C. N.); second vice chairman, C. F. Stoltz (C. C. C. & St. L.). Members of committee of direction: A. H. Rice (D. & H.); J. E. Saunders (D. L. & W.); and Leroy Wyant (C. R. I. & P.).

THE WISCONSIN LAW requiring curtains on locomotive cabs has been sustained by the Supreme Court of that state. This ends litigation in the state courts which was begun in 1923, when the law was passed. The court held that the law was passed in the interest of the public health and therefore does not violate the principle of federal regulation of interstate commerce. The railways are expected to appeal the case to the United States Supreme Court.

Equipment and Supplies

Locomotives

THE ATLANTIC COAST LINE has ordered 5 Santa Fe type locomotives, 10, eight-wheel switching locomotives, 30 Pacific type locomotives and 8, six-wheel switching locomotives from the Baldwin Locomotive Works.

Freight Cars

THE NEW YORK CENTRAL is inquiring for 1,050 hopper cars of 55 tons' capacity.

THE READING COMPANY is inquiring for 1,000 gondola cars of 70 tons' capacity.

THE PACIFIC FRUIT EXPRESS has authorized the purchase of 5,000 refrigerator cars.

THE ATLANTIC COAST LINE is inquiring for 525 single sheathed box cars of 40 tons' capacity, 300 coal cars and 100 ballast cars.

THE DIERKS LUMBER & COAL COMPANY, Kansas City, Mo., has ordered 25 steel underframe logging flat cars, 40 ft. long, of 40 tons' capacity, from the American Car & Foundry Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 500 refrigerator cars from the American Car & Foundry Company and 500 from the Pullman Car & Manufacturing Corporation; inquiry noted in *Railway Age*, November 14.

THE CONSOLIDATED RAILROADS OF CUBA have ordered 200 box cars and 50 stock cars from the American Car & Foundry Company. This is in addition to the 50 box cars and 25 stock cars ordered from the American Car & Foundry Company, as was reported in the *Railway Age* of November 7.

Passenger Cars

THE TEMISKAMING & NORTHERN ONTARIO has ordered 3 first class coaches, 3 second class coaches and 3 baggage cars from the National Steel Car Corporation.

THE ATLANTIC COAST LINE is inquiring for 30 express cars, 25 coaches, 10 combination passenger and baggage cars, 5 combination baggage and mail cars and 2 postal cars.

THE ERIE has ordered 50 suburban coaches and 18 through line coaches from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of November 14.

Iron and Steel

THE FLORIDA EAST COAST has ordered 1,400 tons of bridge steel from the Virginia Bridge & Iron Co.

THE ST. LOUIS SOUTHWESTERN has ordered 10,900 tons of rail from the Tennessee Coal, Iron & Railroad Company.

THE WABASH has ordered 10,500 tons of rail from the Illinois Steel Company, 6,500 tons from the Inland Steel Company, and 3,000 tons from the Bethlehem Steel Company.

Machinery and Tools

THE BROOKLYN MANHATTAN TRANSIT has ordered a 1,100-lb. steam hammer from the Niles-Bement-Pond Company.

THE MISSOURI PACIFIC has ordered a 1,100-lb. steel hammer from the Niles-Bement-Pond Company.

THE ILLINOIS CAR & MANUFACTURING CO. has ordered an axle lathe from the Niles-Bement-Pond Company.

THE CHICAGO & EASTERN ILLINOIS has ordered a combination journal turning and axle lathe, from the Niles-Bement-Pond Company.

Keystone

Girls Who Are Being Instructed for Positions in the Operating Department of the Serbian Railways

FREIGHT CARS ORDERED, INSTALLED AND RETIRED

	Domestic orders reported during month	Installed during month	Aggregate capacity tons	Retired during month	Aggregate capacity tons	Owned at end of month	Aggregate capacity tons	On order as of first of following month	Building in R. R. shops
January, 1925	10,312	11,768	551,263	7,867	326,812	2,341,109	103,812,974	58,910	5,285
February	5,388	15,024	721,867	9,453	365,111	2,346,687	104,169,525	50,603	4,878
March	4,677	16,007	753,947	12,067	474,644	2,350,697	104,454,128	45,419	5,572
April	5,525	13,749	652,462	10,497	423,322	2,353,956	104,683,798	42,602	8,072
May	8,944	12,982	612,607	8,658	335,401	2,356,641	104,902,235	35,823	9,042
June	777	12,191	590,657	9,797	365,589	2,359,040	105,127,861	27,458	8,633
July	843	10,542	504,185	10,051	384,084	2,361,551	105,350,472	26,087	8,189
August	2,816	11,554	564,681	9,259	364,487	2,363,849	105,550,765	20,151	6,440
September	6,113	8,161	361,755	9,196	342,756	2,363,637	105,600,432	19,548	6,246
October	5,556	.....	.....	.....	.....	.....	.....	.....	.....
Total for 9 months	.....	111,978	.....	.....	.....	.....	.....	.....	.....
Total for 10 months	50,951	.....	.....	.....	.....	.....	.....	.....	.....

*Corrected figure

[1]Details as to orders from *Railway Age* weekly reports. Figures include all domestic orders placed with builders and railroad shops but not rebuilt equipment.

[2]Figures as to installations and retirements prepared by Car Service Division A. R. A. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. The figures as to orders as given in the first column of table are not comparable with figures relating to installations given in succeeding columns.

Supply Trade News

The Northwestern Malleable Iron Company, Milwaukee, Wis., will spend $100,000 in modernizing its annealing facilities.

J. A. Hamilton, representative of the **Kerite Company,** with headquarters at Chicago, has been transferred to New York, to succeed Percy Miller.

The Interstate Car & Foundry Company, Indianapolis, Ind., has been incorporated to take over the business of the Interstate Car Company, of that city, under lease.

John E. Ferry, assistant to the president of the **Franklin Railway Oil Company,** Franklin, Pa., has been elected vice-president, with headquarters at Franklin.

The Kuhlman Electric Company, Bay City, Mich., has given a contract to the Henry G. Webber Construction Company for an addition of 75 ft. by 250 ft. In this new building the Kuhlman Company is preparing to build the larger sizes of transformers.

A. O. Norton, Inc., Boston, Mass., has opened an office at 2838 Grand Central Terminal, in charge of **H. J. Wilson;** and another at 421 Chestnut street, Philadelphia, in charge of **O. L. Wright.**

C. L. Wood, assistant general manager of sales of the **Carnegie Steel Company,** Pittsburgh, Pa., has been appointed general manager of sales, to succeed **William G. Clyde,** recently appointed president of the company. **Samuel R. Hoover** has been appointed assistant general manager of sales in charge of the bureau of bars and hoops, to succeed Mr. Wood.

W. F. James, manager of the industrial division of the Philadelphia district of the **Westinghouse Electric & Manufacturing Company,** has been appointed district manager, with headquarters at Philadelphia. The Philadelphia district comprises the greater part of nine adjacent states. Mr. James succeeds **H. H. Seabrook,** for the past twenty years district manager, and now assigned to special duties. Mr. James was born in Philadelphia in 1879; he received his early education in the Philadelphia public schools, graduating from the Central Manual Training High School in 1896. He served his apprenticeship with the Quaker City Electric Company, manufacturers of motors, generators, switchboards, etc., and during that period began his technical education through private study. Later he served for five years with this company as electrical engineer and superintendent. He resigned in 1909 to join the Philadelphia office of the Westinghouse Electric & Manufacturing Company, being engaged in general industrial work until 1912, when he began to specialize in steel mill electrification. During the war period Mr. James participated in the company's important ship propulsion activities. He was made manager of the industrial division in 1923. For many years past Mr. James has been active in the local sections of the American Institute of Electrical Engineers and the American Iron & Steel Electrical Engineers Society, serving as secretary of each organization. From 1918 to 1919, he was chairman of the Philadelphia section of the A. I. E. E., while during 1921-22, he was president of the Engineers Club of Philadelphia, and served as vice-president of the A. I. E. E. during 1923-25.

W. F. James

Clyde L. Jones has joined the sales force at St. Louis of the **Reading Iron Company,** Reading, Pa. Mr. Jones' headquarters are at 1819 Railway Exchange building, St. Louis, Mo. He has a wide experience in the pipe consuming field, having served in a similar position with the Interstate Pipe Company, from which company he resigned to go to the Reading Iron Company.

Clinton L. Bardo, formerly general manager of the New York, New Haven & Hartford, who resigned in June, 1925, has been elected vice-president of **American Brown, Boveri Electric Corporation,** with headquarters at 165 Broadway, New York City, a subsidiary of **Brown, Boveri & Co., Ltd.,** Baden, Switzerland, electrical manufacturers, who early this year announced that they would enter the American market. The new company has bought the plant of the New York Shipbuilding Corporation at Camden, N. J., and will make this its manufacturing center for the building of turbines, electric locomotives and large electrical apparatus. In addition, the company has manufacturing facilities at Hyde Park, Boston, Mass., and at Sidney, N. Y. Mr. Bardo, who will have his headquarters at New York, has left for a six weeks' tour abroad to inspect the plants of the associated companies. Clinton L. Bardo was born on October 24, 1867, and began railway work as a telegraph operator on the Philadelphia & Erie division of the Pennsylvania Railroad in May, 1885. He was in the service of the Pennsylvania for about a year and then for a brief period served with the Philadelphia & Reading, now the Reading Company, and the Tidewater Oil Company. In October, 1887, he went to the Lehigh Valley as telegraph operator and shortly after was promoted to train dispatcher. In 1892, he served as assistant trainmaster, then trainmaster, and in 1901, was promoted to trainmaster on the New York division. Mr. Bardo, in October, 1904, went to the New York, New Haven & Hartford as freight trainmaster at Harlem River, N. Y., becoming assistant superintendent of the division in 1905. In 1907, he was appointed superintendent of the Grand Central Terminal, New York City, and superintendent of the electric division of the New York Central, resigning from that position in 1911 to return to the Lehigh Valley as assistant to the general manager. In February, 1913, he resigned from the Lehigh Valley and was appointed general manager of the New York, New Haven & Hartford, and in September, 1917, he was appointed assistant to the president, also remaining in general charge of the operating department, with headquarters at New Haven, Conn. Mr. Bardo resigned from the New Haven service in June, 1925.

C. L. Bardo

Portland Cement Association Constructs New Office

The annual meeting of the Portland Cement Association which was held in Chicago on November 18 and 19, included ceremonies incident to the laying of the corner stone for the association's research laboratory and general offices at Grand avenue and Dearborn street. Robert W. Lesley, Philadelphia, Pa., one of the organizers of the association, was the principal speaker. Blaine S. Smith, general sales manager of the Universal Portland Cement Company and president of the association, and B. F. Affleck, president of the Universal Portland Cement Company, and chairman of the building committee, also took an active part in the ceremonies.

Officers elected at the meeting were president, Blaine S. Smith (re-elected); first vice-president, L. R. Burch, vice-president of the Atlas Portland Cement Company; second vice-president, C. A. Irvin, vice-president of the Alpha Portland Cement Company; and treasurer, John W. Boardman, of the Huron & Wyandotte Portland Cement Company.

Obituary

Andrew Grass, vice-president of the Wheeling Corrugating Company, Wheeling, W. Va., died on November 22, after a few hours' illness.

Trade Publications

FORGING MACHINERY.—A 10½-in. by 13½-in. book containing 20 pages of illustrated matter descriptive of the second exposition of National forging machinery recently held at Tiffin, Ohio, has been prepared by the National Machinery Company, Tiffin. This book is intended to bring the exposition to those who were unable to attend, and shows the progress in National machine forging equipment.

"COMPARISON OF DIESEL ENGINE PRINCIPLES."—This is the title of Bulletin No. 1020 recently issued by Fairbanks, Morse & Co., Chicago. The bulletin is a clear, non-technical exposition of the various principles of operation on which Diesel engines have been developed, in which is set forth the reasons why this company has adopted the two-stroke cycle, airless fuel injection principle in its stationary and marine Diesel engines. In addition to the discussion of the advantages of the two-cycle principle and the airless fuel injection, the bulletin explains the two-stage process of combustion incorporated in Fairbanks-Morse engines, the fuel economy, factors affecting heat dissipation and the speed control and regulation of these engines. The bulletin is thoroughly illustrated with both photographs and diagrams.

WATER SOFTENING.—The National Lime Association, 918 G street, Northwest, Washington, D. C., has issued a 48-page booklet describing the use of lime in water softening and purification. The booklet, which is a technical presentation of the subject, is divided into four chapters: (1) a discussion of the advantages of the use of lime in water treatment by C. P. Hoover, Columbus, O.; (2) an analysis of the cost of impurities in locomotive water supply and the value of water treatment, taken from the 1925 report of the Water Service Committee of the American Railway Engineering Association; (3) a discussion of raw water ice, and (4) a discussion of variance from accepted formulae in water flows. This booklet, and particularly the first two chapters, contains information of value to railway engineers responsible for the provision of locomotive water supply.

Painted by Stanhope Forbes, R. A.

"The Permanent Way—Relaying," a London, Midland & Scottish Poster

Railway Construction

BALTIMORE & OHIO.—This company has awarded a contract to the Vang Construction Company, Cumberland, Md., for the construction of a bridge at Millvale, Pa.; estimated cost, $60,000.

CHICAGO, MILWAUKEE & ST. PAUL.—The construction of a 13-mile extension of the Blackfoot, Mont., branch from Clearwater, Mont., eastward at a cost of $150,000 is contemplated.

CHICAGO, ROCK ISLAND & PACIFIC.—Bids are being received for the construction of a two-story freight house, 40 ft. by 260 ft. at Kansas City, Mo.

CHICAGO, ROCK ISLAND & PACIFIC.—Additions to the machine shop, engine house and other terminal buildings at Dalhart, Tex., are under construction, the projection to cost a toal of $100,000.

DENVER & RIO GRANDE WESTERN.—A contract has been awarded to A. Danielson & Son, Denver, Colo., for the construction of a two-story, reinforced concrete and steel addition to the company hospital at Salida, Colo., to cost $124,000.

DENVER & RIO GRANDE WESTERN.—The line from Helper, Utah, to Kenilworth, a distance of six miles, will be relocated to reduce grade. Expenditures for improvements in 1926 are contemplated as follows: Elimination of grade crossings and changes in grades, $452,000; additional yard tracks, $314,000; station buildings, $82,000; fuel and water stations, $50,000; shop buildings, $63,000; extensions, $1,229,000.

GROVETON, LUFKIN & NORTHERN.—The Trinity County Lumber Company of Texas of which this company is a subsidiary is reported as planning the construction of a branch line 50 miles long through the timber tract which it has purchased in the northern part of Tyler county, Tex.

LOUISVILLE & NASHVILLE.—This company has asked the Interstate Commerce Commission for an extension of time to February 1, 1926, in which to file with the commission an application for authority for the construction of the proposed extension between its McRoberts line and its Harlan County branch and the Carolina, Clinchfield & Ohio, which was required as one of the conditions in the commission's order authorizing the acquisition of control of the C. C. & O., by the Atlantic Coast Line and the Louisville & Nashville. The application says that additional time is needed for engineering work.

MISSOURI-KANSAS-TEXAS.—An additional unit in the car shops at Denison, Tex., consisting of a steel frame, covered shed, 56 ft. by 350 ft., with 20-ton and 5-ton cranes traveling the length of the buildings, and with a 200-ft. extension of the craneway outside of the building, is being constructed. The shed will be closed in down to 10 ft. above the ground, and will cost complete, including machinery, approximately $130,000. The contract for the steel frame was awarded to Stupp Bros., St. Louis, Mo.

TIMOTHY CARROLL, the engineman at fault in the disastrous collision of passenger trains near Monmouth Junction, N. J., on November 12, who was arrested on the 13th, charged with involuntary manslaughter, was set free by the grand jury of Middlesex County at New Brunswick, N. J., on November 24. The jury took testimony of state and railroad officers and deliberated on the matter for several hours, but finally decided not to return true bills against Carroll. Of the 23 grand jurors, one was a woman, Mrs. Ezekiel Barclay.

A SUIT for $245,331 has been filed in the St. Louis Circuit Court by the Dravo Construction Company, Pittsburgh, Pa., against the New Orleans, Texas & Mexico. The petition alleges that the railway company contracted in August, 1922, for the construction of a car transfer boat to cost $245,000. During the construction, it is charged, the railway ordered so many changes in the plans that the contract was invalidated and the cost increased to $490,331. The construction company claims that the Gulf Coast Lines paid the contract price but has refused to pay the difference.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the Rocky Mountain & Santa Fe.

CAPE GIRARDEAU NORTHERN.—*Final Valuation.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $1,257,716 as of June 30, 1914.

CINCINNATI, FLEMINGSBURG & SOUTHEASTERN.—*Final Valuation.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the common-carrier property owned and used to be $151,397 as of June 30, 1917.

CHESAPEAKE & OHIO.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority to issue $4,920,000 of 4½ per cent equipment trust certificates to be sold at not less than 96.89.

CHICAGO, MILWAUKEE & ST. PAUL.—*Reorganization Plan.*—Terms of a modified plan for the reorganization of the Chicago, Milwaukee & St. Paul were made public on November 20 by Kuhn, Loeb & Co., and the National City Company, reorganization managers, and notice of assent to the plan was given by the Roosevelt bondholders' protective committee and the Iselin stockholders' committee. The bondholders' committee headed by Edwin C. Jameson will continue its opposition. The official announcement of the new plan read in part as follows:

"In order to meet the desire of numerous savings banks, insurance companies and similar institutions that they should receive new fixed interest bearing bonds for a portion of their investment, the bondholders participating in the plan are to receive 20 per cent of the principal amount of their bonds in new 50-year 5 per cent mortgage gold bonds of the same issue as the bonds to be issued to stockholders on account of the cash assessment, thereby increasing the total issue of such bonds (secured by a closed mortgage) from $60,698,820 to $106,388,980. Five per cent adjustment (income) mortgage bonds described in the plan are to be issued for the remaining 80 per cent.

"In order that holders of the new adjustment (income) mortgage bonds, in recognition of their waiving a fixed interest charge in respect of 80 per cent of their holdings, may be afforded an opportunity of sharing with the stockholders in the ultimate prosperity which it is hoped the property will achieve, the adjustment mortgage bonds are to be convertible for the life of the bonds, at the option of the holder, into preferred stock and common stock of the new company at the rate of five shares of preferred stock and five shares of common stock for each $1,000 bond.

"These two modifications involve necessary minor changes. It seems necessary to call attention to only two of these changes. (a) The first is the creation of a cumulative sinking fund of $225,000 a year after April 1, 1936, for the retirement of 50-year 5 per cent mortgage gold bonds. . . . (b) To the end that the provision of the present plan in respect of income applicable to capital requirements shall remain approximately unchanged in spite of the increase of $2,309,508 in fixed interest charges, the modified plan provides that the proportion of the net income available for interest on the adjustment (income) mortgage bonds which the board of directors may apply for capital expenditures is to be two-thirds (instead of one-half) of such available income of each year, until the available income for such year shall equal $7,500,000 (instead of $10,000,000).

"The reorganization managers take this opportunity to announce that in the exercise of the power vested in them under the plan they have selected, with the approval of the three committees representing, respectively, the bondholders and the holders of preferred stock and common stock, the five trustees in whom the voting power of the new stock is to be vested until January 1, 1930; that is, for the period during which the interest upon the new adjustment mortgage bonds is not cumulative. The trustees so selected are: Elihu Root, Frederick H. Ecker, Henry S. Pritchett, Samuel Rea and W. D. Van Dyke, all of whom have agreed to serve. . . . In case legislation should be enacted during the coming session of Congress and should result in the funding, or extension for a long period, of the railway company's debt of $55,000,000 to the United States Government on terms which will meet the essential immediate and permanent requirements summarized above, thereby relieving the stockholders of the necessity of providing the funds required for the payment of the debt as provided in the present plan, depositors of stock under the modified plan may rest assured that the reorganization managers will so modify the plan as to effect substantially corresponding reductions in the amount of cash to be provided by the stockholders.

"As the reorganization managers and the committees are solicitous that investors in the securities affected by the plan should not sacrifice their holdings, they take this opportunity of restating and supplementing for the benefit of stockholders the information heretofore given regarding the opportunity for stockholders to realize, by sale or loan, upon the fifty-year 5 per cent mortgage gold bonds which they will receive for their cash assessment. There will doubtless be a ready market for these bonds. On the basis of the present plan they are now quoted, on a when issued basis, at about 82½. Therefore, a stockholder may reasonably count on being able to reduce his cash assessment by selling his bonds at a fair price. If they are sold even at so low a price as 80, the net cash assessment would be only $8.80 per share in the case of preferred stock, and $9.60 per share in the case of common stock, assuming that the railway company's debt to the United States cannot be satisfactorily refunded and the assessment remains as provided in the present plan.

"Stockholders who prefer to keep their bonds will doubtless be able to procure funds to meet the larger part of the assessment by borrowing upon the new securities from their own banks or other financial institutions. If, at the time when payments on account of the assessment must be made, any small stockholders should lack the facilities to make the necessary arrangements for the sale of their bonds or to borrow upon the new securities, as they may prefer, they are invited to communicate with the committee representing their stock, inasmuch as the stockholders' committees and the reorganization managers expect to be able to assist any such stockholders to finance their participation in the plan. Such stockholders may therefore deposit their stock under the modified plan with full confidence that, if desired, suitable means will be devised to aid them to meet the required payments.

"Holders of certificates of deposit for preferred stock and common stock already deposited under the plan may withdraw the stock represented thereby on or before December 24, 1925, as provided in the plan and agreement. Under the terms of the plan and agreement the modifications do not entitle depositors of bonds to withdraw from the plan.

"Bonds and stock not already deposited may be deposited under the modified plan, without penalty, on or before December 24, 1925."

George E. Roosevelt announced for the Roosevelt committee that any depositor of bonds under the Roosevelt plan dissenting from the compromise terms might withdraw his holdings. After a specified period, he added, all bonds not so withdrawn would be turned over to the Kuhn-Loeb depositaries. Securities may be deposited under the modified plan without penalty on or before December 24.

Court Denies Stockholders Permission to Intervene.—Federal Judge Wilkerson at Chicago on November 19 denied the petition of the minority group of stockholders headed by Ernest Iselin, a member of the banking firm of A. Iselin & Co., for permission to intervene in the reorganization. Attorney Rosenthal, representing this group, after being denied permission to withdraw his petition, announced that an agreement with the bondholders' groups interested in the case had been reached on all but a few minor points.

Following the court's ruling, Attorney Weymouth Kirkland, representing the new "bondholders' defense committee," reported in the *Railway Age* of November 21, presented a new petition for permission to intervene in the case. Judge Wilkerson set December 14 as the date for arguments on this petition. The purpose of the new bondholders' defense committee is to postpone the reorganization until a decision of the Interstate Commerce Commission on the applications for the increases in freight rates has been reached. It is understood that Former Governor Nathan L. Miller of New York will represent the new petitioners at the hearing on December 14.

COMBS, CASS & EASTERN.—*Abandonment.*—The Interstate Commerce Commission has issued a certificate permitting this company to abandon that portion of its line from Cass to Frazer, 9.08 miles, in Franklin County, Ark. This line was built to serve lumbering operations since abandoned.

DEERING SOUTHWESTERN.—*Final Valuation.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $453,000 as of June 30, 1917.

DELAWARE & HUDSON.—*Valuation.*—This company has filed with the Interstate Commerce Commission a brief stating that the commission should vacate its orders purporting to establish a tentative valuation and establish a new tentative valuation in conformity to law.

DENVER & SALT LAKE.—*Reorganization Plan Declared Operative.*—The reorganization committee of the Denver & Salt Lake has declared the reorganization plan for that road operative as of November 20. Under the plan, holders of certificates of deposit must pay 30 per cent of the total payments required within 10 days after November 20.

DURHAM UNION STATION.—*Valuation.*—A final valuation of $111,044 has been placed by the Interstate Commerce Commission on the owned and used property of this company as of June 30, 1916.

FORDYCE & PRINCETON.—*Final Valuation.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carried purposes to be $174,071 as of June 30, 1916.

GEORGIA, FLORIDA & ALABAMA.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to issue $750,000 of 5½ per cent equipment trust certificates.

GREENE COUNTY.—*Final Valuation.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $152,977 as of June 30, 1915.

GULF PORTS TERMINAL.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Pensacola, Fla., to Pemona, Ala., 31 miles, and a branch line from Parker, Fla., to Muscogee, 11½ miles.

ILLINOIS CENTRAL.—*Acquisition.*—The Interstate Commerce Commission has made public a proposed report by Examiner O. D. Reed recommending a finding by the commission that the acquisition by the Yazoo & Mississippi Valley of control of the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific would be in the public interest, subject to conditions requiring the maintenance of existing routes and gateways and the present neutrality of handling traffic by the Vicksburg route.

KANSAS CITY SOUTHERN.—*Control of Kansas City & Grandview.*—The Interstate Commerce Commission has authorized the Kansas City Southern to acquire control of the Kansas City & Grandview by purchase of its capital stock. The Kansas City & Grandview was incorporated in 1923 at the instance of the Kansas City Southern, and has been authorized by the commission to build a line from Kansas City, Mo., to Grandview, 13.48 miles, the construction of which line is to begin before October 1, 1926, and completed before September 30, 1929. At the present time the Kansas City Southern operates between Kansas City and Grandview by means of trackage rights over the St. Louis-San Francisco.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon and remove its line between Western Junction, Wis., and Phlox, 10.75 miles.

MONTOUR.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized this carrier to issue $500,000 equipment trust bonds, series B, covering 500 55-ton steel hopper cars costing approximately $770,000. Payment of principal and interest is guaranteed by the Pittsburgh Coal Company.

NEW ORLEANS, TEXAS & MEXICO.—*Bonds.*—The Interstate Commerce Commission has granted authority to this company to issue $3,000,000 first mortgage bonds, series A or series B. Of these $1,500,000 to be delivered to the former owners of the San Antonio, Uvalde & Gulf, the Asphalt Belt Railway and the Live Oak Pipe Line; the other $1,500,000 to be sold, the series A bonds at not less than 98, and the series B bonds at not less than 93. Pending their sale, the bonds may be pledged as collateral security for short term notes. This financing is in connection with the purchase of the San Antonio, Uvalde & Gulf by the Gulf Coast Lines, which the commission recently authorized.

Acquisition. The Interstate Commerce Commission has approved the acquisition by the New Orleans, Texas & Mexico (Gulf Coast Lines) of the Sugar Land, the Asherton & Gulf and the Rio Grande City. The Sugar Land operates a line from Cabells, Tex., to Anchor, 38.94 miles, and connects with the International-Great Northern, a subsidiary company of the Gulf Coast Lines, at House and Anchor. Between House and Houston it operates over the International-Great Northern by trackage rights. The Asherton & Gulf operates a line from a connection with the International-Great Northern at Bart, Tex., to Asherton, 32.1 miles. The Rio Grande City has under construction a line extending from Sam Fordyce, the present terminus of the Gulf Coast Lines' Rio Grande Valley Line, to Rio Grande City, 22 miles.

The three roads which the Gulf Coast Lines wishes to acquire are all controlled by W. T. Eldridge through stock ownership, and the Gulf Coast Lines has agreed to purchase from him all of the outstanding capital stock and other outstanding securities and indebtedness for $1,700,000. This money will be secured by the sale of $1,700,000 first mortgage bonds, application for authority to issue which securities is now pending before the commission. The commission's decision says that "Apparently the proposed acquisitions would benefit the public and aid in the development of the territory through the assurance of a stable and permanent transportation service; would effect substantial economies in operation; and would afford interested shippers a better car supply, a more expeditious movement, and in some instances a reduction in intrastate rates." Commissioner Eastman dissented.

NEW YORK, NEW HAVEN & HARTFORD.—*Allowed to Keep Trolley Lines.*—Federal Judge Francis A. Winslow of the Southern District Court of New York, on November 21 sustained the petition of the railroad for modification of the dissolution decree of 1914. He directed the return to the railroad company of its holdings in the Connecticut Company, the New York & Stamford Street Railway Company, the Berkshire Street Railway Company and the Vermont Company, which have been in the hands of federal trustees. Judge Winslow gave as the principal reason for his decision the change in transportation conditions since 1914, when the decree of dissolution was promulgated. The trolley lines, he said, which might at that time have been considered competitors, and the absorption of which by the New Haven would have violated the Sherman anti-trust law, were not such today. He also gave some importance to the fact that no purchaser for the securities had been found, and he said that he was convinced of the good faith of the railroad's contention that no sale had been possible. Opposition to the modification of the decree was offered by the Connecticut Motor Stage Corporation. E. G. Buckland, vice-president of the New Haven, promised the court that in taking back the subsidiary trolley lines, the railroad would provide new rolling stock, tracks and equipment. The federal dissolution decree was modified in June, 1923, when the court permitted the return of the Boston & Maine holdings to the New Haven. The Rhode Island trolleys were sold under a receivership in 1920 with a heavy loss.

SANTA FE NORTHWESTERN.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for a certificate authorizing the acquisition and operation of a line from Deer Creek, N. Mex., to Sandoval, 6.32 miles.

ST. LOUIS-SAN FRANCISCO.—*Acquisition.*—The Interstate Commerce Commission has issued a certificate authorizing the Muscle Shoals, Birmingham & Pensacola Railroad to acquire and operate the property of the Muscle Shoals, Birmingham & Pensacola Railway, extending from Pensacola, Fla., to Kimbrough, Ala., 143 miles, with 16 miles of branch line, and to issue $305,000 of common stock. It has also authorized the St. Louis-San Francisco to acquire control of the company by purchase of its stock.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—*Bonds.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability as lessee in respect of $3,500,000 of first mortgage bonds of the St. Louis Merchants' Bridge Terminal and $2,000,000 of first mortgage bonds of the St. Louis Merchants' Bridge Company.

Dividends Declared

Atlantic Coast Line.—Common, 3½ per cent; common (extra), 1 per cent, both payable January 11 to holders of record December 16.

Buffalo, Rochester & Pittsburgh.—Common, $2, payable December 15 to holders of record December 5.

Chesapeake & Ohio.—Common, 2 per cent; preferred, 3½ per cent, both payable January 1 to holders of record December 4.

Chicago, Burlington & Quincy.—5 per cent, semi-annually, payable December 26 to holders of record December 17.

Cincinnati, New Orleans & Texas Pacific.—Common, 3 per cent; common (extra), 3½ per cent, both payable December 21 to holders of record December 1. Preferred, 1¼ per cent, quarterly, payable December 1 to holders of record November 21.

Colorado & Southern.—First preferred, 2 per cent; second preferred, 4 per cent, both payable December 31 to holders of record December 13.

Hocking Valley.—2 per cent semi-annually, payable December 31 to holders of record December 4.

Louisville & Nashville.—3 per cent semi-annually, payable February 10 to holders of record January 15.

Midland Valley.—Preferred, $1.25, payable December 1 to holders of record November 23.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¾ per cent, quarterly, payable December 1 to holders of record November 20.

Trend of Railway Stock and Bond Prices

	Nov. 24	Last Week	Last Year
Average price of 20 representative railway stocks	91.13	92.20	78.68
Average price of 20 representative railway bonds	92.90	92.63	89.15

Railway Officers

Executive

George Westerfield has been appointed receiver of the Rio Grande Railway, with headquarters at Brownsville, Tex.

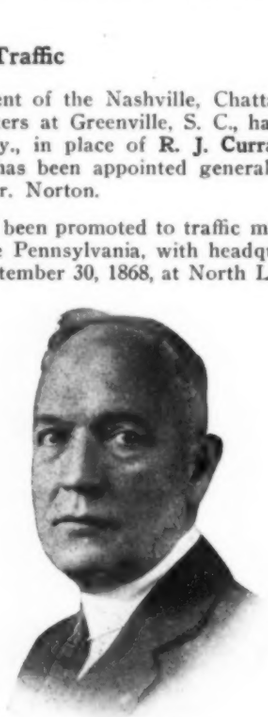
Financial, Legal and Accounting

J. T. Mahaney, auditor of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., has been promoted to assistant controller, with the same headquarters, a newly created position. **E. W. Peabody,** secretary, with headquarters at St. Louis, has been promoted to auditor, with the same headquarters, in place of Mr. Mahaney. **N. A. Phillips,** assistant secretary, with headquarters at St. Louis, has been promoted to secretary, with the same headquarters, succeeding Mr. Peabody. **Frank Johnson,** treasurer, with headquarters at St. Louis, has been appointed also assistant secretary in place of Mr. Phillips.

Traffic

J. M. Norton, general agent of the Nashville, Chattanooga & St. Louis, with headquarters at Greenville, S. C., has been transferred to Louisville, Ky., in place of **R. J. Curran,** deceased. **C. B. Willingham** has been appointed general agent at Greenville, succeeding Mr. Norton.

James E. Weller, who has been promoted to traffic manager of the Western region of the Pennsylvania, with headquarters at Chicago, was born on September 30, 1868, at North Liberty, Pa., and entered railway service in September, 1887, in the traffic department of the Lake Shore & Michigan Southern, now a part of the New York Central. In November, 1891, he was appointed traveling freight agent on the Pennsylvania, and held that position until January, 1897, when he was promoted to commercial agent. In March, 1906, Mr. Weller was promoted to district freight solicitor and two years later was promoted to division freight agent. He was promoted to general western freight agent, with headquarters at Chicago, in June, 1910, and continued in that capacity until August, 1918, when he was appointed assistant chief of the Inland Traffic Service of the United States War Department at Pittsburgh, Pa. In January, 1919, Mr. Weller was promoted to regional traffic assistant in the Northwestern region of the United States Railroad Administration at Chicago. Upon the termination of federal control in March, 1920, he was appointed freight traffic manager of the Northwestern region of the Pennsylvania, where he remained until June, 1925, when he was promoted to assistant traffic manager of the newly created Western region. Mr. Weller continued in that capacity until his recent promotion to traffic manager.



J. E. Weller

E. F. Menge, assistant general freight agent of the Fort Dodge, Des Moines & Southern, with headquarters at Boone, Iowa, has been transferred to Chicago. The position of assistant general freight agent at Chicago is a newly created one.

H. J. Andrew, traffic agent of the Chicago & Alton, with headquarters at Indianapolis, Ind., has been promoted to general agent, with headquarters at Tulsa, Okla., in charge of a newly established general agency.

R. A. Bishop, division freight and passenger agent of the Chicago Great Western, with headquarters at Red Wing, Minn., has been promoted to general passenger agent, with headquarters at Chicago, succeeding **R. J. Sefton,** who has been appointed general agent, with headquarters at Dallas, Tex. Mr. Sefton requested this change owing to ill-health. He will succeed **J. H. Cummings,** who has been transferred to Dubuque, Ia.

Operating

B. G. Roberts has been appointed assistant superintendent of telegraph of the Seaboard Air Line, with headquarters at Savannah, Ga.

L. F. Muncey, superintendent of the Kamloops division of the British Columbia district of the Canadian National, with headquarters at Kamloops Junction, B. C., has been promoted to superintendent of transportation of the British Columbia district, with headquarters at Vancouver, B. C., succeeding C. F. Martin, deceased. **W. C. Owens,** assistant superintendent of the Kamloops division, with headquarters at Kamloops Junction, has been promoted to superintendent, with the same headquarters, in place of Mr. Muncey. **J. P. Kirkpatrick,** assistant superintendent of the Smithers division, with headquarters at Smithers, B. C., has been transferred to the Kamloops division, succeeding Mr. Owens. **F. G. Jackson** has been appointed assistant superintendent of the Smithers division, succeeding Mr. Kirkpatrick.

Mechanical

F. P. Pfahler has been appointed assistant to the chief of motive power and equipment of the Seaboard Air Line, with headquarters at Savannah, Ga., a newly created position.

Obituary

Frederick Dougherty, marine superintendent in New York of the Central Vermont, died of heart disease on November 24, at his home 547 Senator street, Brooklyn. Mr. Dougherty was 47 years old and had been with the road for 30 years.

George D. Kelley, a lawyer of Ottawa, Ont., who died in that city last week, was for a number of years associated through his profession with the Canadian Pacific. He was a director of a number of companies, and through his association with the Canadian Pacific he served for a time on a number of arbitration boards, especially with regard to public utilities disputes.

W. E. Bailey, general auditor of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died suddenly in that city on November 20. Death was caused by heart disease. Mr. Bailey was born on October 26, 1857, near Dowagiac, Mich., and entered railway service in April, 1884, as a clerk in the bookkeeping department of the auditor's office of the Atchison, Topeka & Santa Fe. He subsequently held various positions in the auditing department and in March, 1892, he was promoted to chief clerk to the assistant general auditor. He was promoted to assistant to the first vice-president in April, 1895, and in July of the following year was appointed special accountant in the general auditor's office. In October, 1898, Mr. Bailey was appointed chief clerk to the general auditor at Chicago. He was promoted to auditor of the Southern California and the Santa Fe Pacific, now parts of the Santa Fe, at Los Angeles, Cal., in February, 1899, and in June of the following year was promoted to assistant general auditor at Chicago. In October, 1905, he was promoted to general auditor, which position he held until his death, with the exception of the period from January, 1918, until March 1, 1920, when he served as federal auditor under the United States Railroad Administration.